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FILE LAST UPDATED: 30 Oct 2005 (20051030/ED)

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=> s azide and (halide or fluoride or bromide or chloride or iodide)

40516 AZIDE

8453 AZIDES

42884 AZIDE

(AZIDE OR AZIDES)

149189 HALIDE

124494 HALIDES

216721 HALIDE

(HALIDE OR HALIDES)

243148 FLUORIDE

43914 FLUORIDES

258477 FLUORIDE

(FLUORIDE OR FLUORIDES)

256062 BROMIDE

29294 BROMIDES

269554 BROMIDE

(BROMIDE OR BROMIDES)

1049962 CHLORIDE

154349 CHLORIDES

1120439 CHLORIDE

(CHLORIDE OR CHLORIDES)

169314 IODIDE

23765 IODIDES

178938 IODIDE

(IODIDE OR IODIDES)

L1 11392 AZIDE AND (HALIDE OR FLUORIDE OR BROMIDE OR CHLORIDE OR IODIDE)

=> 1 and transition metal

1 IS NOT A RECOGNIZED COMMAND

The previous command name entered was not recognized by the system.
For a list of commands available to you in the current file, enter
"HELP COMMANDS" at an arrow prompt (=>).

=> s l1 and transition metal

906033 TRANSITION

249612 TRANSITIONS

1014697 TRANSITION

(TRANSITION OR TRANSITIONS)

1605806 METAL

812964 METALS

1948341 METAL

(METAL OR METALS)

173986 TRANSITION METAL

(TRANSITION(W) METAL)

L2 162 L1 AND TRANSITION METAL

=> s 12 and dimethyl
 335450 DIMETHYL
 44 DIMETHYLS
 335473 DIMETHYL
 (DIMETHYL OR DIMETHYLS)
 L3 10 L2 AND DIMETHYL

=> d 13 1-10 all

L3 ANSWER 1 OF 10 CAPLUS COPYRIGHT 2005 ACS on STN

	Full Text	Citing References
AN	2004:161244	CAPLUS
DN	140:202430	
ED	Entered STN: 27 Feb 2004	
TI	Salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials	
IN	Armand, Michel; Michot, Christophe; Gauthier, Michel; Choquette, Yves	
PA	Hydro-Quebec, Can.; Centre National De La Recherche Scientifique (CNRS)	
SO	Eur. Pat. Appl., 33 pp. CODEN: EPXXDW	
DT	Patent	
LA	French	
IC	ICM H01M006-16	
	ICS H01M010-40	
CC	52-2 (Electrochemical, Radiational, and Thermal Energy Technology) Section cross-reference(s): 27, 28, 29, 35, 76	

FAN. CNT 5

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1391952	A2	20040225	EP 2003-292436	19971230
	R: DE, FR, GB, IT				
	CA 2194127	AA	19980630	CA 1996-2194127	19961230
	CA 2199231	AA	19980905	CA 1997-2199231	19970305
	EP 850933	A1	19980701	EP 1997-403188	19971230
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	EP 889863	A2	19990113	EP 1997-951051	19971230
	EP 889863	B1	20030507		
	R: DE, FR, GB, IT				
	EP 890176	A1	19990113	EP 1997-951052	19971230
	EP 890176	B1	20010620		
	R: DE, FR, GB, IT				
	JP 2000508114	T2	20000627	JP 1998-529517	19971230
	JP 2000508346	T2	20000704	JP 1998-529516	19971230
	JP 2000508676	T2	20000711	JP 1998-529514	19971230
	JP 2000508677	T2	20000711	JP 1998-529515	19971230
	JP 2000508678	T2	20000711	JP 1998-529518	19971230
	JP 2002514245	T2	20020514	JP 1998-529513	19971230
	US 6120696	A	20000919	US 1998-125792	19980828
	US 6171522	B1	20010109	US 1998-101811	19981119
	US 6333425	B1	20011225	US 1998-101810	19981119
	US 6228942	B1	20010508	US 1998-125798	19981202
	US 6395367	B1	20020528	US 1998-125799	19981202
	US 6319428	B1	20011120	US 1998-125797	19981203
	US 6365068	B1	20020402	US 2000-609362	20000630
	US 6576159	B1	20030610	US 2000-638793	20000809
	US 2001024749	A1	20010927	US 2001-826941	20010406
	US 6506517	B2	20030114		
	US 2002009650	A1	20020124	US 2001-858439	20010516

	<u>US 2002102380</u>	A1	20020801	<u>US 2002-107742</u>	20020327
	<u>US 6835495</u>	B2	20041228		
	<u>US 2003052310</u>	A1	20030320	<u>US 2002-253035</u>	20020924
	<u>US 2003066988</u>	A1	20030410	<u>US 2002-253970</u>	20020924
	<u>US 2005074668</u>	A1	20050407	<u>US 2004-789453</u>	20040227
	<u>US 2005123831</u>	A1	20050609	<u>US 2004-926283</u>	20040825
PRAI	<u>CA 1996-2194127</u>	A	19961230		
	<u>CA 1997-2199231</u>	A	19970305		
	<u>EP 1997-403188</u>	A3	19971230		
	<u>WO 1997-CA1008</u>	W	19971230		
	<u>WO 1997-CA1009</u>	W	19971230		
	<u>WO 1997-CA1010</u>	W	19971230		
	<u>WO 1997-CA1011</u>	W	19971230		
	<u>WO 1997-CA1012</u>	W	19971230		
	<u>WO 1997-CA1013</u>	W	19971230		
	<u>US 1998-101810</u>	A3	19981119		
	<u>US 1998-101811</u>	A3	19981119		
	<u>US 1998-125798</u>	A3	19981202		
	<u>US 1998-125799</u>	A3	19981202		
	<u>US 1998-125797</u>	A1	19981203		
	<u>US 2000-638793</u>	A1	20000809		
	<u>US 2001-858439</u>	A1	20010516		
	<u>US 2002-107742</u>	A1	20020327		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
<u>EP 1391952</u>	ICM	H01M006-16
	ICS	H01M010-40
<u>EP 1391952</u>	ECLA	B01J031/04; C07D231/18; C07D233/90; C07D249/04; C07D249/10; C07D249/12; C07D307/54; C07D311/52; C07D311/58; C07D311/82; C07D333/16; C07D333/24; C07D405/06+303+249B; H01B001/12F
<u>CA 2194127</u>	ECLA	B01J031/02E2; B01J031/04; C07B037/02; C07B037/12; C07B044/06; C07C045/46+49/84; C07C045/69+49/553; C07C067/00; C07C255/10; C07C255/17; C07C255/27; C07C255/46; C07C255/65; C07C257/14; C07C311/03; C07C311/04; C07C311/09; C07C311/48; C07C317/04; C07C317/08; C07C317/14; C07C317/22; C07C317/24; C07C317/34; C07D207/44D1B; C07D213/76D; C07D219/10; C07D231/18; C07D233/90; C07D239/60; C07D241/42D; C07D249/04; C07D249/10; C07D249/12; C07D251/70; C07D277/64; C07D277/82; C07D285/00D; C07D285/12D4; C07D285/12D6F1; C07D285/16D; C07D303/34; C07D307/54; C07D307/64; C07D311/52; C07D311/58; C07D311/82; C07D319/06; C07D333/16; C07D333/24; C07D405/06+303+249B; C07D409/12+333B+319; C07D417/10+311+285; C07D417/14+285+277; C07D417/14+285+277+277; C07F017/02; C08F004/04; C08G065/334D; C09B069/00; C09B069/02; C09B069/10; H01B001/12F; H01B001/12H6; H01G009/02C; H01G009/02D; H01M006/00; H01M006/16E3; H01M006/18B; H01M006/18C2; H01M010/40B; H01M010/40E3; H01M010/40L2
<u>CA 2199231</u>	ECLA	B01J031/02E2; C07D417/14+285+277+277; C07D417/14+285+277; C07F017/02; C08F004/04; C08G065/334D; C09B069/00; C09B069/02; C09B069/10; H01B001/12F; H01B001/12H6; H01G009/02C; H01G009/02D; H01M006/00; H01M006/16E3; H01M006/18B; H01M006/18C2; H01M010/40B; H01M010/40E3; H01M010/40L2; B01J031/04; C07C255/46; C07C255/65; C07C257/14; C07C311/03; C07C311/04; C07C311/09; C07C311/48; C07C317/04;

		C07C317/08; C07C317/14; C07C317/22; C07C317/24; C07C317/34; C07D207/44D1B; C07D213/76D; C07D219/10; C07D231/18; C07D233/90; C07D239/60; C07D241/42D; C07D249/04; C07D249/10; C07D249/12; C07D251/70; C07D277/64; C07D277/82; C07D285/00D; C07D285/12D6F1; C07D285/12D4; C07D285/16D; C07D303/34; C07D307/54; C07D307/64; C07D311/52; C07D311/58; C07D311/82; C07D319/06; C07D333/16; C07D333/24; C07D405/06+303+249B; C07D409/12+333B+319; C07D417/10+311+285; C07B037/02; C07B037/12; C07B044/06; C07C045/46+49/84; C07C045/69+49/553; C07C067/00; C07C255/10; C07C255/17; C07C255/27
<u>EP 850933</u>	ECLA	B01J031/02E2; C07C067/00; C07C255/10; C07C255/17; C07C255/27; C07C255/46; C07C255/65; C07C257/14; C07C311/03; C07C311/04; C07C311/09; C07C311/48; C07C317/04; C07C317/08; C07C317/14; C07C317/22; C07C317/24; C07C317/34; C07D207/44D1B; C07D213/76D; C07D219/10; C07D231/18; C07D233/90; C07D239/60; C07D241/42D; C07D249/04; C07D249/10; C07D249/12; C07D251/70; C07D277/64; C07D277/82; C07D285/00D; C07D285/12D6F1; C07D285/12D4; C07D285/16D; C07D303/34; C07D307/54; C07D307/64; C07D311/52; C07D311/58; C07D311/82; C07D319/06; C07D333/16; B01J031/04; C07D333/24; C07D405/06+303+249B; C07D409/12+333B+319; C07D417/10+311+285; C07D417/14+285+277+277; C07F017/02; C08F004/04; C08G065/334D; C09B069/00; C09B069/02; C09B069/10; H01B001/12F; H01B001/12H6; H01G009/02C; H01G009/02D; H01M006/00; H01M006/18B; H01M010/40B; H01M010/40E3; H01M010/40L2; C07B037/02; C07B037/12; C07B044/06; C07C045/46+49/84; C07C045/69+49/553
<u>US 6120696</u>	NCL	252/062.200; 359/265.000; 359/270.000
	ECLA	B01J031/02E2; C07C317/34; C07D207/44D1B; C07D213/76D; C07D219/10; C07D231/18; C07D233/90; C07D239/60; C07D241/42D; C07D249/04; C07D249/10; C07D249/12; C07D251/70; C07D277/64; C07D277/82; C07D285/00D; C07D285/12D4; C07D285/12D6F1; C07D285/16D; C07D303/34; C07D307/54; C07D307/64; C07D311/52; C07D311/58; C07D311/82; C07D319/06; C07D333/16; C07D333/24; C07D405/06+303+249B; C07D409/12+333B+319; C07D417/10+311+285; C07D417/14+285+277+277; C07F017/02; C08F004/04; C08G065/334D; C09B069/00; C09B069/02; C09B069/10; H01B001/12F; H01B001/12H6; H01G009/02C; H01G009/02D; H01M006/00; B01J031/04; H01M006/16E3; H01M006/18B; H01M006/18C2; H01M010/40B; H01M010/40E3; H01M010/40L2; C07B037/02; C07B037/12; C07B044/06; C07C045/46+49/84; C07C045/69+49/553; C07C067/00; C07C255/10; C07C255/17; C07C255/27; C07C255/46; C07C255/65; C07C257/14; C07C311/03; C07C311/04; C07C311/09; C07C311/48; C07C317/04; C07C317/08; C07C317/14; C07C317/22; C07C317/24
<u>US 6171522</u>	NCL	252/500.000; 252/062.200; 345/049.000; 359/265.000; 429/188.000; 429/199.000; 429/324.000; 502/102.000; 502/300.000; 502/302.000; 549/014.000; 549/357.000
	ECLA	B01J031/02E2; C07C311/04; C07C311/09; C07C311/48; C07C317/04; C07C317/08; C07C317/14; C07C317/22; C07C317/24; C07C317/34; C07D207/44D1B; C07D213/76D; C07D219/10; C07D231/18; C07D233/90; C07D239/60; C07D241/42D; C07D249/04; C07D249/10; C07D249/12; C07D251/70; C07D277/64; C07D277/82; C07D285/00D; C07D285/12D4; C07D285/12D6F1; C07D285/16D; C07D303/34;

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<u>US 6333425</u>	NCL	558/167.000; 534/838.000; 546/096.000; 546/256.000; 548/300.100; 548/340.100; 558/386.000; 558/440.000; 558/453.000
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<u>US 6228942</u>	NCL	525/183.000; 252/511.000; 428/367.000; 524/495.000; 524/496.000; 525/066.000; 525/263.000
	ECLA	B01J031/02E2; C07C311/04; C07C311/09; C07C311/48; C07C317/04; C07C317/08; C07C317/14; C07C317/22; C07C317/24; C07C317/34; C07D207/44D1B; C07D213/76D; C07D219/10; C07D231/18; C07D233/90; C07D239/60; C07D241/42D; C07D249/04; C07D249/10; C07D249/12; C07D251/70; C07D277/64; C07D277/82; C07D285/00D; C07D285/12D6F1; C07D285/12D4; C07D285/16D; C07D303/34; C07D307/54; C07D307/64; C07D311/52; C07D311/58; C07D311/82; C07D319/06; C07D333/16; C07D333/24; C07D405/06+303+249B; C07D409/12+333B+319; C07D417/10+311+285; C07D417/14+285+277+277; C07F017/02; C08F004/04; C08G065/334D; B01J031/04; C09B069/00; C09B069/02; C09B069/10; H01B001/12F; H01B001/12H6; H01G009/02C; H01G009/02D; H01M006/00; H01M006/18B; H01M010/40B; H01M010/40E3; H01M010/40L2; C07B037/02; C07B037/12; C07B044/06; C07C045/46+49/84; C07C045/69+49/553; C07C067/00; C07C255/10; C07C255/17; C07C255/27; C07C255/46; C07C255/65; C07C257/14; C07C311/03
<u>US 6395367</u>	NCL	428/064.800; 359/265.000; 429/188.000; 429/324.000; 430/541.000; 430/926.000; 548/262.200; 548/267.800; 548/268.200
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		C07C311/04; C07C311/09; C07C311/48; C07C317/04; C07C317/08; C07C317/14; C07C317/22; C07C317/24; C07C317/34; C07D207/44D1B; C07D213/76D; C07D219/10; C07D231/18; C07D233/90; C07D239/60; C07D241/42D; C07D249/04; C07D249/10; C07D249/12; C07D251/70; C07D277/64; C07D277/82; C07D285/00D; C07D285/12D4; C07D285/12D6F1; C07D285/16D; C07D303/34; C07D307/54; C07D307/64; C07D311/52; C07D311/58; C07D311/82; C07D319/06; C07D333/16; C07D333/24; B01J031/04; C07D405/06+303+249B; C07D409/12+333B+319; C07D417/10+311+285; C07D417/14+285+277+277; C07F017/02; C08F004/04; C08G065/334D; C09B069/00; C09B069/02; C09B069/10; H01B001/12F; H01B001/12H6; H01G009/02C; H01G009/02D; H01M006/00; H01M006/18B; H01M010/40B; H01M010/40E3; H01M010/40L2; C07B037/02; C07B037/12; C07B044/06; C07C045/46+49/84; C07C045/69+49/553; C07C067/00
<u>US 6319428</u>	NCL	252/500.000; 029/623.100; 361/327.000; 429/199.000; 429/200.000; 429/245.000; 564/096.000; 564/098.000; 568/027.000
	ECLA	B01J031/02E2; H01M010/40L2; B01J031/04; C07D219/10; C07D231/18; C07D233/90; C07D239/60; C07D241/42D; C07D249/04; C07D249/10; C07D249/12; C07D251/70; C07D277/64; C07D277/82; C07D285/00D; C07D285/12D6F1; C07D285/12D4; C07D285/16D; C07D303/34; C07D307/54; C07D307/64; C07D311/52; C07D311/58; C07D311/82; C07D319/06; C07D333/16; C07D333/24; C07D405/06+303+249B; C07D409/12+333B+319; C07D417/10+311+285; C07D417/14+285+277+277; C07F017/02; C08F004/04; C08G065/334D; C09B069/00; C09B069/02; C09B069/10; H01B001/12F; H01B001/12H6; H01G009/02C; H01G009/02D; H01M006/00; H01M006/18B; H01M010/40B; H01M010/40E3; C07B037/02; C07B037/12; C07B044/06; C07C045/46+49/84; C07C045/69+49/553; C07C067/00; C07C255/10; C07C255/17; C07C255/27; C07C255/46; C07C255/65; C07C257/14; C07C311/03; C07C311/04; C07C311/09; C07C311/48; C07C317/04; C07C317/08; C07C317/14; C07C317/22; C07C317/24; C07C317/34; C07D207/44D1B; C07D213/76D
<u>US 6365068</u>	NCL	252/500.000; 252/062.200; 345/049.000; 359/265.000; 429/188.000; 429/199.000; 502/102.000; 502/300.000; 502/302.000; 549/014.000
	ECLA	B01J031/02E2; C07C067/00; C07C255/10; C07C255/17; C07C255/27; C07C255/46; C07C255/65; C07C257/14; C07C311/03; C07C311/04; C07C311/09; C07C311/48; C07C317/04; C07C317/08; C07C317/14; C07C317/22; C07C317/24; C07C317/34; C07D207/44D1B; C07D213/76D; C07D219/10; C07D231/18; C07D233/90; C07D239/60; C07D241/42D; C07D249/04; C07D249/10; C07D249/12; C07D251/70; C07D277/64; C07D277/82; C07D285/00D; C07D285/12D4; C07D285/12D6F1; C07D285/16D; C07D303/34; C07D307/54; C07D307/64; C07D311/52; C07D311/58; C07D311/82; C07D319/06; C07D333/16; B01J031/04; C07D333/24; C07D405/06+303+249B; C07D409/12+333B+319; C07D417/10+311+285; C07D417/14+285+277+277; C07F017/02; C08F004/04; C08G065/334D; C09B069/00; C09B069/02; C09B069/10; H01B001/12F; H01B001/12H6; H01G009/02C; H01G009/02D; H01M006/00; H01M006/18B; H01M010/40B; H01M010/40E3; H01M010/40L2; C07B037/02; C07B037/12; C07B044/06; C07C045/46+49/84; C07C045/69+49/553

<u>US 6576159</u>	NCL	252/511.000; 252/062.200; 252/500.000; 252/510.000; 252/518.100; 252/519.200; 252/519.300; 429/188.000; 546/256.000; 548/300.100; 556/001.000; 556/143.000; 558/167.000; 558/440.000; 558/453.000
	ECLA	B01J031/02E2; B01J031/04; C07D285/12D4; C07D285/12D6F1; C07D285/16D; C07D303/34; C07D307/54; C07D307/64; C07D311/52; C07D311/58; C07D311/82; C07D319/06; C07D333/16; C07D333/24; C07D405/06+303+249B; C07D409/12+333B+319; C07D417/10+311+285; C07D417/14+285+277+277; C07F017/02; C08F004/04; C08G065/334D; C09B069/00; C09B069/02; C09B069/10; H01B001/12F; H01B001/12H6; H01G009/02C; H01G009/02D; H01M006/00; H01M006/18B; H01M010/40B; H01M010/40E3; H01M010/40L2; C07B037/02; C07B037/12; C07B044/06; C07C045/46+49/84; C07C045/69+49/553; C07C067/00; C07C255/10; C07C255/17; C07C255/27; C07C255/46; C07C255/65; C07C257/14; C07C311/03; C07C311/04; C07C311/09; C07C311/48; C07C317/04; C07C317/08; C07C317/14; C07C317/22; C07C317/24; C07C317/34; C07D207/44D1B; C07D213/76D; C07D219/10; C07D231/18; C07D233/90; C07D239/60; C07D241/42D; C07D249/04; C07D249/10; C07D249/12; C07D251/70; C07D277/64; C07D277/82; C07D285/00D
<u>US 2001024749</u>	NCL	429/122.000
	ECLA	B01J031/02E2; H01M010/40L2; B01J031/04; C07D219/10; C07D231/18; C07D233/90; C07D239/60; C07D241/42D; C07D249/04; C07D249/10; C07D249/12; C07D251/70; C07D277/64; C07D277/82; C07D285/00D; C07D285/12D4; C07D285/12D6F1; C07D285/16D; C07D303/34; C07D307/54; C07D307/64; C07D311/52; C07D311/58; C07D311/82; C07D319/06; C07D333/16; C07D333/24; C07D405/06+303+249B; C07D409/12+333B+319; C07D417/10+311+285; C07D417/14+285+277+277; C07F017/02; C08F004/04; C08G065/334D; C09B069/00; C09B069/02; C09B069/10; H01B001/12F; H01B001/12H6; H01G009/02C; H01G009/02D; H01M006/00; H01M006/18B; H01M010/40B; H01M010/40E3; C07B037/02; C07B037/12; C07B044/06; C07C045/46+49/84; C07C045/69+49/553; C07C067/00; C07C255/10; C07C255/17; C07C255/27; C07C255/46; C07C255/65; C07C257/14; C07C311/03; C07C311/04; C07C311/09; C07C311/48; C07C317/04; C07C317/08; C07C317/14; C07C317/22; C07C317/24; C07C317/34; C07D207/44D1B; C07D213/76D
<u>US 2002009650</u>	NCL	429/314.000
	ECLA	B01J031/02E2; C07D249/04; C07D249/10; C07D249/12; C07D251/70; C07D277/64; C07D277/82; C07D285/00D; C07D285/12D4; C07D285/12D6F1; C07D285/16D; C07D303/34; C07D307/54; C07D307/64; C07D311/52; C07D311/58; C07D311/82; C07D319/06; C07D333/16; C07D333/24; C07D405/06+303+249B; C07D409/12+333B+319; C07D417/10+311+285; C07D417/14+285+277+277; C07F017/02; C08F004/04; C08G065/334D; C09B069/00; C09B069/02; C09B069/10; H01B001/12F; H01B001/12H6; H01G009/02C; H01G009/02D; H01M006/00; H01M006/18B; H01M010/40B; H01M010/40E3; H01M010/40L2; B01J031/04; C07B037/02; C07B037/12; C07B044/06; C07C045/46+49/84; C07C045/69+49/553; C07C067/00; C07C255/10; C07C255/17; C07C255/27; C07C255/46; C07C255/65; C07C257/14; C07C311/03; C07C311/04; C07C311/09; C07C311/48; C07C317/04; C07C317/08; C07C317/14; C07C317/22;

		C07C317/24; C07C317/34; C07D207/44D1B; C07D213/76D; C07D219/10; C07D231/18; C07D233/90; C07D239/60; C07D241/42D
<u>US 2002102380</u>	NCL	428/064.800
	ECLA	B01J031/02E2; B01J031/04; C07B037/02; C07B037/12; C07B044/06; C07C045/46+49/84; C07C045/69+49/553; C07C067/00; C07C255/10; C07C255/17; C07C255/27; C07C255/46; C07C255/65; C07C257/14; C07C311/03; C07C311/04; C07C311/09; C07C311/48; C07C317/04; C07C317/08; C07C317/14; C07C317/22; C07C317/24; C07C317/34; C07D207/44D1B; C07D213/76D; C07D219/10; C07D231/18; C07D233/90; C07D239/60; C07D241/42D; C07D249/04; C07D249/10; C07D249/12; C07D251/70; C07D277/64; C07D277/82; C07D285/00D; C07D285/12D4; C07D285/12D6F1; C07D285/16D; C07D303/34; C07D307/54; C07D307/64; C07D311/52; C07D311/58; C07D311/82; C07D319/06; C07D333/16; C07D333/24; C07D405/06+303+249B; C07D409/12+333B+319; C07D417/10+311+285; C07D417/14+285+277+277; C07F017/02; C08F004/04; C08G065/334D; C09B069/00; C09B069/02; C09B069/10; H01B001/12F; H01B001/12H6; H01G009/02C; H01G009/02D; H01M006/00; H01M006/18B; H01M010/40B; H01M010/40E3; H01M010/40L2
<u>US 2003052310</u>	NCL	252/500.000
	ECLA	B01J031/02E2; B01J031/04; C07D285/12D4; C07D285/12D6F1; C07D285/16D; C07D303/34; C07D307/54; C07D307/64; C07D311/52; C07D311/58; C07D311/82; C07D319/06; C07D333/16; C07D333/24; C07D405/06+303+249B; C07D409/12+333B+319; C07D417/10+311+285; C07D417/14+285+277+277; C07F017/02; C08F004/04; C08G065/334D; C09B069/00; C09B069/02; C09B069/10; H01B001/12F; H01B001/12H6; H01G009/02C; H01G009/02D; H01M006/00; H01M006/18B; H01M010/40B; H01M010/40E3; H01M010/40L2; C07B037/02; C07B037/12; C07B044/06; C07C045/46+49/84; C07C045/69+49/553; C07C067/00; C07C255/10; C07C255/17; C07C255/27; C07C255/46; C07C255/65; C07C257/14; C07C311/03; C07C311/04; C07C311/09; C07C311/48; C07C317/04; C07C317/08; C07C317/14; C07C317/22; C07C317/24; C07C317/34; C07D207/44D1B; C07D213/76D; C07D219/10; C07D231/18; C07D233/90; C07D239/60; C07D241/42D; C07D249/04; C07D249/10; C07D249/12; C07D251/70; C07D277/64; C07D277/82; C07D285/00D
<u>US 2003066988</u>	NCL	252/500.000
	ECLA	B01J031/02E2; B01J031/04; C07D251/70; C07D277/64; C07D277/82; C07D285/00D; C07D285/12D4; C07D285/12D6F1; C07D285/16D; C07D303/34; C07D307/54; C07D307/64; C07D311/52; C07D311/58; C07D311/82; C07D319/06; C07D333/16; C07D333/24; C07D405/06+303+249B; C07D409/12+333B+319; C07D417/10+311+285; C07D417/14+285+277+277; C07F017/02; C08F004/04; C08G065/334D; C09B069/00; C09B069/02; C09B069/10; H01B001/12F; H01B001/12H6; H01G009/02C; H01G009/02D; H01M006/00; H01M006/18B; H01M010/40B; H01M010/40E3; H01M010/40L2; C07B037/02; C07B037/12; C07B044/06; C07C045/46+49/84; C07C045/69+49/553; C07C067/00; C07C255/10; C07C255/17; C07C255/27; C07C255/46; C07C255/65; C07C257/14; C07C311/03; C07C311/04; C07C311/09; C07C311/48; C07C317/04; C07C317/08; C07C317/14; C07C317/22; C07C317/24; C07C317/34;

C07D207/44D1B; C07D213/76D; C07D219/10; C07D231/18;
C07D233/90; C07D239/60; C07D241/42D; C07D249/04;
C07D249/10; C07D249/12

US 2005074668 NCL 429/199.000
ECLA B01J031/02E2; B01J031/04; C07B037/02; C07B037/12;
C07B044/06; C07C045/46+49/84; C07C045/69+49/553;
C07C067/00; C07C255/10; C07C255/17; C07C255/27;
C07C255/46; C07C255/65; C07C257/14; C07C311/03;
C07C311/04; C07C311/09; C07C311/48; C07C317/04;
C07C317/08; C07C317/14; C07C317/22; C07C317/24;
C07C317/34; C07D207/44D1B; C07D213/76D; C07D219/10;
C07D231/18; C07D233/90; C07D239/60; C07D241/42D;
C07D249/04; C07D249/10; C07D249/12; C07D251/70;
C07D277/64; C07D277/82; C07D285/00D; C07D285/12D4;
C07D285/12D6F1; C07D285/16D; C07D303/34; C07D307/54;
C07D307/64; C07D311/52; C07D311/58; C07D311/82;
C07D319/06; C07D333/16; C07D333/24;
C07D405/06+303+249B; C07D409/12+333B+319;
C07D417/10+311+285; C07D417/14+285+277+277; C07F017/02;
C08F004/04; C08G065/334D; C09B069/00; C09B069/02;
C09B069/10; H01B001/12F; H01B001/12H6; H01G009/02C;
H01G009/02D; H01M006/00; H01M006/18B; H01M010/40B;
H01M010/40E3; H01M010/40L2

US 2005123831 NCL 429/188.000
ECLA B01J031/02E2; B01J031/04; C07B037/02; C07B037/12;
C07B044/06; C07C045/46+49/84; C07C045/69+49/553;
C07C067/00; C07C255/10; C07C255/17; C07C255/27;
C07C255/46; C07C255/65; C07C257/14; C07C311/03;
C07C311/04; C07C311/09; C07C311/48; C07C317/04;
C07C317/08; C07C317/14; C07C317/22; C07C317/24;
C07C317/34; C07D207/44D1B; C07D213/76D; C07D219/10;
C07D231/18; C07D233/90; C07D239/60; C07D241/42D;
C07D249/04; C07D249/10; C07D249/12; C07D251/70;
C07D277/64; C07D277/82; C07D285/00D; C07D285/12D4;
C07D285/12D6F1; C07D285/16D; C07D303/34; C07D307/54;
C07D307/64; C07D311/52; C07D311/58; C07D311/82;
C07D319/06; C07D333/16; C07D333/24;
C07D405/06+303+249B; C07D409/12+333B+319;
C07D417/10+311+285; C07D417/14+285+277+277; C07F017/02;
C08F004/04; C08G065/334D; C09B069/00; C09B069/02;
C09B069/10; H01B001/12F; H01B001/12H6; H01G009/02C;
H01G009/02D; H01M006/00; H01M006/18B; H01M010/40B;
H01M010/40E3; H01M010/40L2

AB This invention describes ionic compds. where the anionic charge is delocalized. One compd. of the invention contains an anionic part assocd. with at least one mono- or multivalent cationic part M^{m+}, in a no. sufficient to ensure electronic neutrality of the material. M can be a hydronium, nitrosyl NO⁺, an ammonium NH₄⁺, a metallic cation with valence m, an org. cation having a valence m, or an organometallic cation having valence m. The anionic charge is carried by a new pentacyclic moiety or deriv. of tetrapentalene carrying electroattractive substituents. The compds. are used notably for ionic conduction, electronic conductors, dyes and colorants, and catalysts for diverse chem. reactions. They can also be used as electrolytes in fuel cells and batteries.

ST pentacyclic tetrapentalene salt charge delocalized anion ionic conduction; alkali alk earth **transition metal** salt heterocyclic electrolyte polymer; electrochem cell fuel polyelectrolyte cond soly catalysis fluoropolymer polysiloxane

IT Polyoxyalkylenes, uses
RL: TEM (Technical or engineered material use); USES (Uses)

- (5-membered ring- contg.; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Spinel-type crystals
($\text{Li}_y\text{Mn}_{1-x}\text{M}_x\text{O}_2$, pos. electrode; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Polymerization
(anionic; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Solvents
(aprotic, title compds. sol. in; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Polymers, uses
RL: DEV (Device component use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(block, ethylene oxide, propylene oxide, allyl glycidyl ether; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Optical absorption
(by polymer electrolytes; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Carbon black, uses
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(composite electrodes with soft polymer or LiCoO_2 and polymer gel electrolytes, or with acetylene black, VO_2 and PEO; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Ethers, uses
RL: NUU (Other use, unclassified); USES (Uses)
(cyclic, solvent for title compds.; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Polysiloxanes, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(di-Me, Me hydrogen, a trimethylsilyl-terminated polysiloxane; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Lithiation
(during battery operation; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Polyoxoalkylenes, processes
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
(electrolyte complexes with lithium salts, carbon blacks, (1,2,3-triazolium) ionic liqs., and other materials; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Substituent effects
(electronic, electron-withdrawing substituents; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Polyoxoalkylenes, uses
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(esters, esters of dicarboxylic acid-substituted 1,2,3-triazole salts; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Heterocyclic compounds
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(five-membered, arom., with combinations of N, S, P in ring, anions of;

- salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Polysiloxanes, uses
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(fluorine-contg., reaction products; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Polysiloxanes, uses
RL: RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)
(fluorine-contg.; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Aromatic hydrocarbons, preparation
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(halo, anions contg. 5-membered rings; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Hydrocarbons, uses
RL: NUU (Other use, unclassified); USES (Uses)
(halo, solvent for title compds.; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Cyano group
(ionic compds. contg.; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Phosphates, uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(iron, manganese, and lithium -contg.; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Textiles
(laminated, polyelectrolyte composite membrane perfluorinated sulfonylpyrazole-contg. polymer; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Heterocyclic compounds
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(nitrogen, five-membered, arom., anions of; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Open circuit potential
(of dye-sensitized solar cells with imidazolium-triazole-iodide electrolytes; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Ionic conductivity
(of lithium salts in polymer electrolytes and polymer gel electrolytes; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Cyclic voltammetry
(of secondary battery cells with polymer gel electrolytes; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Polysulfides
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(org., pos. electrode; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

- IT Cations
(org.; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT **Fluorides, uses**
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(org.; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Azines
Group VA element compounds
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(phosphazines, polymers, "solvents" for title compds.; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Heterocyclic compounds
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(phosphorus, arom., five-membered, anions of; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Polar solvents
(polymeric; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Vinyl compounds, uses
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polymers; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Polyurethanes, uses
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(polyoxyalkylene-, polyethylene glycol- based, "solvents" for title compds.; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Fluoropolymers, uses
RL: RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)
(polysiloxane-; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Olivine-group minerals
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(pos. electrode; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Secondary batteries
(salts of pentacyclic or tetrapentalene derived anions for use in; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Aldol condensation catalysts
Antistatic agents
Coloring materials
Corrosion inhibitors
Dyes
Electron delocalization
Esterification
Friedel-Crafts reaction catalysts
Fuel cell separators

Heterojunction solar cells
 Ionic liquids
 Michael reaction catalysts
 Plasticizers
 Polyelectrolytes
 Polymer electrolytes
 Polymerization catalysts
 Solubility
 Substitution reaction, nucleophilic
 Surfactants
 (salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Alkali metal salts

Transition metal salts

RL: DEV (Device component use); PRP (Properties); PUR (Purification or recovery); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Fluoropolymers, uses

Polyanilines

Salts, uses

RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Quaternary ammonium compounds, uses

RL: DEV (Device component use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
 (salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Polysiloxanes, uses

RL: DEV (Device component use); RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)
 (salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Alkaline earth salts

Rare earth salts

RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
 (salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Organometallic compounds

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (salts with organometallic cations; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Nitroso compounds

RL: DEV (Device component use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
 (salts; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Electric current

(short circuit; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Phosphates, uses

RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)

- (silico-, iron, manganese, and lithium -contg.; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Fluoropolymers, uses
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(siloxane-, reaction products; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Ethers, uses
RL: DEV (Device component use); NUU (Other use, unclassified); USES (Uses)
(solvent for title compds.; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Amides, uses
Nitrates, uses
Nitriles, uses
Sulfamides
Sulfones
RL: NUU (Other use, unclassified); USES (Uses)
(solvent for title compds.; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Diels-Alder reaction catalysts
(stereoselective; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Heterocyclic compounds
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(sulfur, arom., five-membered, anions of; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Aromatic compounds
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(sulfur, heterocyclic, five-membered, anions of; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Cations
(trivalent, metal salts; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 75-21-8D, Ethylene oxide, block polyoxyalkylene copolymers contg.
75-56-9D, Propylene oxide, block polyoxyalkylene copolymers contg.
106-92-3D, Allylglycidyl ether, block polyoxyalkylene copolymers contg.
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
("solvents" for title compds.; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 661461-43-4P
RL: CAT (Catalyst use); PUR (Purification or recovery); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(Aldol condensation catalyst; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 280-57-9, 1,4-Diazabicyclo[2.2.2]octane
RL: RCT (Reactant); RACT (Reactant or reagent)
(DABCO; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 210469-99-1P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(a dye; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 661467-43-2P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

- (an antistatic surfactant; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 12036-21-4, Vanadium dioxide
 RL: DEV (Device component use); USES (Uses)
 (battery electrode composites with acetylene black and PEO; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 210469-97-9P
 RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (composite electrodes with LiCoO₂ and carbon black; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 661461-60-5DP, polyaniline doped with
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); PUR (Purification or recovery); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
 (conductor and corrosion inhibitor; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 7439-89-6, Iron, properties
 RL: PRP (Properties)
 (corrosion of; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 1314-35-8, Tungsten trioxide, uses 202847-01-6, Hydrogen iridium oxide
 RL: DEV (Device component use); USES (Uses)
 (electrode; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 25322-68-3, Polyethylene oxide
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
 (electrolyte complexes with lithium salts, carbon blacks, (1,2,3-triazolium) ionic liqs., and other materials; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 210289-62-6P
 RL: PRP (Properties); PUR (Purification or recovery); SPN (Synthetic preparation); PREP (Preparation)
 (electrolyte, ionic liq.; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 210470-02-3P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (electropolymd.; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 7429-90-5, Aluminum, uses
 RL: DEV (Device component use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
 (in electrochem. cells, and corrosion of; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate
 RL: PRP (Properties)
 (in gel polymer electrolyte; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 107-13-1, Acrylonitrile, reactions
 RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)
 (in gel polymer electrolyte; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 110-86-1D, Pyridine, anionic derivs.
 RL: DEV (Device component use); TEM (Technical or engineered material

- use); USES (Uses)
(including photosensitizing dyes; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 2923-16-2
RL: RCT (Reactant); RACT (Reactant or reagent)
(made by Parish, see pg. 13; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 13463-67-7, Titanium dioxide, uses
RL: DEV (Device component use); USES (Uses)
(nanoparticles; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 7439-93-2D, Lithium, alloys
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(neg. electrode; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 661461-63-8P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(photoinitiator; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 210289-59-1P
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(polyelectrolyte composite membrane with GoreTex and Friedel-Crafts catalyst; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 1317-37-9, Iron sulfide (FeS) 10028-22-5, Iron sulfate (Fe₂(SO₄)₃)
11099-11-9, Vanadium oxide 12068-85-8, Iron disulfide (FeS₂)
12423-04-0, Lithium vanadium oxide (LiV₃O₈) 61179-01-9, Aluminum lithium manganese oxide 131344-56-4, Cobalt lithium nickel oxide 133782-19-1, Lithium manganese vanadium oxide 162684-16-4, Lithium manganese nickel oxide 204450-96-4, Chromium lithium manganese oxide
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(pos. electrode; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 661461-54-7P
RL: PRP (Properties); PUR (Purification or recovery); SPN (Synthetic preparation); PREP (Preparation)
(pure and polymer electrolytes with polyethylene oxide; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 110-86-1, Pyridine, uses 865-47-4 5264-33-5 7440-50-8, Copper, uses 7440-66-6, Zinc, uses 7664-93-9, Sulfuric acid, uses 16941-12-1, Chloroplatinic acid
RL: CAT (Catalyst use); USES (Uses)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 7580-67-8, Lithium hydride
RL: CAT (Catalyst use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 7553-56-2, Iodine, uses 141460-19-7, N 3 Dye 178631-05-5
RL: DEV (Device component use); USES (Uses)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 9003-07-0, Polypropylene
RL: DEV (Device component use); PEP (Physical, engineering or chemical

- process); PYP (Physical process); PROC (Process); USES (Uses)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 12190-79-3, Cobalt lithium oxide (CoLiO₂)
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 210289-36-4P 661461-40-1P 661461-42-3P 661461-49-0P 661461-50-3P
661461-64-9P 661467-44-3P
RL: DEV (Device component use); PRP (Properties); PUR (Purification or recovery); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 13968-08-6DP, Hydronium, salts
RL: DEV (Device component use); PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 289-06-5D, Thiadiazole, anionic derivs. 289-95-2D, Pyrimidine, anionic derivs. 290-37-9D, Pyrazine, anionic derivs. 7439-93-2, Lithium, uses 11120-54-0D, Oxadiazole, anionic derivs.
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 124-38-9, Carbon dioxide, formation (nonpreparative)
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 7447-40-7, Potassium **chloride**, reactions
RL: FMU (Formation, unclassified); RCT (Reactant); REM (Removal or disposal); FORM (Formation, nonpreparative); PROC (Process); RACT (Reactant or reagent)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 554-68-7, Triethylammonium **chloride** 2624-17-1, Sodium isocyanurate 4128-37-4 7492-68-4, Copper carbonate 7727-37-9, Nitrogen, processes 14075-53-7, Potassium tetrafluoroborate 63872-66-2, 1,4-Diazabicyclo[2.2.2]octane, hydrochloride
RL: FMU (Formation, unclassified); REM (Removal or disposal); FORM (Formation, nonpreparative); PROC (Process)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 56664-66-5
RL: MOA (Modifier or additive use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 123-91-1, Dioxane, uses 7487-88-9, Magnesium sulfate, uses
RL: NUU (Other use, unclassified); USES (Uses)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 75-38-7D, Vinylidene difluoride, derivs., polymers of 80-62-6D, Methyl methacrylate, derivs., polymers of 88-12-0D, derivs., polymers of 107-13-1D, Acrylonitrile, derivs., polymers of
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

- IT 210289-57-9P
 RL: PEP (Physical, engineering or chemical process); PUR (Purification or recovery); PYP (Physical process); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); RACT (Reactant or reagent)
 (salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 210289-51-3P
 RL: PRP (Properties); PUR (Purification or recovery); SPN (Synthetic preparation); PREP (Preparation)
 (salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 661461-51-4P
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 67-56-1, Methanol, uses
 RL: PRP (Properties); RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)
 (salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 210469-91-3P 661461-52-5P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 210470-01-2P
 RL: PUR (Purification or recovery); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
 (salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 709-62-6P 7343-34-2P, 3,5-Dimethyl-1H-1,2,4-triazole
25979-00-4P 210289-29-5P 210289-38-6P 210289-49-9P 210289-52-4P
210469-88-8P 210469-95-7P 661461-45-6P 661461-57-0P 661461-60-5P
 RL: PUR (Purification or recovery); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 100-06-1P, p-Acetylanisole 210289-48-8P 661461-44-5P 661461-53-6P
661461-55-8P 661461-56-9P 661467-37-4P
 RL: PUR (Purification or recovery); SPN (Synthetic preparation); PREP (Preparation)
 (salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT 76-05-1, reactions 78-94-4, Methyl vinyl ketone, reactions 94-41-7
98-88-4, Benzoyl chloride 100-52-7, Benzaldehyde, reactions 100-66-3, Anisole, reactions 102-52-3, 1,1,3,3-Tetramethoxypropane
106-20-7, Di-2-ethylhexylamine 108-24-7, Acetic anhydride 109-72-8, Butyllithium, reactions 110-61-2, Succinic dinitrile 112-76-5, Stearic acid chloride 121-44-8, Triethylamine, reactions 143-33-9, Sodium cyanide 144-55-8, Sodium bicarbonate, reactions 303-04-8, 2,3-Dichloro-Hexafluoro-2-butene 326-90-9, 4,4,4-Trifluoro-1-(2-furyl)-1,3-butanedione 326-91-0 375-72-4, Perfluorobutanesulfonyl fluoride 407-38-5, 2,2,2-Trifluoroethyl trifluoroacetate 421-83-0, Trifluoromethanesulfonyl chloride 497-19-8, Sodium carbonate, reactions 538-75-0, Dicyclohexylcarbodiimide 542-92-7, Cyclopentadiene, reactions 554-13-2, Lithium carbonate 584-08-7, Potassium carbonate 676-58-4, Methylmagnesium chloride 677-25-8, Ethenesulfonyl fluoride 692-50-2 693-13-0, 1,3-Diisopropylcarbodiimide 764-93-2, 1-Decyne 765-12-8, Triethylene

glycol divinyl ether 917-70-4, Lanthanum acetate 937-14-4,
 3-Chloroperoxybenzoic acid 1000-84-6 1068-57-1, Acetylhydrazide
1122-28-7, 4,5-Dicyanoimidazole 1310-58-3, Potassium hydroxide,
 reactions 1522-22-1, Hexafluoroacetylacetone 1643-19-2,
 Tetrabutylammonium bromide 1648-99-3 2094-98-6,
 1,1'-Azobis(cyclohexanecarbonitrile) 2582-30-1, 1-Aminoguanidine
 bicarbonate 2633-67-2, 4-Styrenesulfonyl chloride 2638-94-0,
 4,4'-Azobis(4-cyanovaleric acid) 2893-78-9, Dichloroisocyanuric acid,
 sodium salt 3804-23-7, Scandium acetate 4546-95-6,
 1,2,3-Triazole-4,5-dicarboxylic acid 7447-41-8, Lithium chloride
 , reactions 7647-01-0, Hydrochloric acid, reactions 7647-14-5, Sodium
 chloride, reactions 7664-39-3, Hydrofluoric acid, reactions
7757-82-6, Sodium sulfate, reactions 7758-09-0, Potassium nitrite
7782-50-5, Chlorine, reactions 7789-23-3, Potassium fluoride
9002-92-0, Brij 30 13360-57-1 13637-84-8, Chlorosulfonyl
 fluoride 13781-67-4, 2-(3-Thienyl)ethanol 14635-75-7,
 Nitrosonium tetrafluoroborate 16090-14-5 17455-13-9, 18-Crown-6
17587-22-3, 1,1,1,2,2,3,3-Heptafluoro-7,7-dimethyl
 -4,6-octanedione 20583-66-8, 1,1,1,5,5,6,6,7,7,7-Decafluoro-2,4-
 Heptanedione 26628-22-8, Sodium azide 27070-49-1,
 1,2,3-Triazole 31469-15-5, 1-Methoxy-1-(trimethylsilyloxy)-2-methyl-1-
 propene 39262-22-1 39377-49-6, Copper cyanide 53188-07-1, Trolox
56512-49-3, 4-(Dimethylamino)azobenzene-4'-sulfonyl chloride
65039-09-0, 1-Ethyl-3-methyl-1H-imidazolium chloride
66051-48-7 77968-17-3 81850-46-6 81850-47-7 89183-45-9,
 Polyaniline hydrochloride 210049-00-6 210289-26-2 210289-55-7
210469-93-5 661461-58-1 661461-61-6

RL: RCT (Reactant); RACT (Reactant or reagent)

(salts of pentacyclic or tetrapentalene derived anions, and their uses
 as ionic conductive materials)

IT 7081-78-9P, 1-Chloro-1-ethoxyethane 14694-34-9P 210289-23-9P
210289-24-0P 210289-27-3P 210289-28-4P 210289-33-1P 210289-34-2P
210289-35-3P 210469-96-8P 210470-00-1P 661461-47-8P 661461-59-2P
661467-33-0P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
 (Reactant or reagent)

(salts of pentacyclic or tetrapentalene derived anions, and their uses
 as ionic conductive materials)

IT 1333-74-0, Hydrogen, uses

RL: RCT (Reactant); TEM (Technical or engineered material use); RACT
 (Reactant or reagent); USES (Uses)

(salts of pentacyclic or tetrapentalene derived anions, and their uses
 as ionic conductive materials)

IT 58649-05-1P 107740-92-1P 159699-92-0P 210289-25-1P 210469-94-6P
661461-39-8P 661461-41-2P 661461-46-7P 661461-48-9P 661465-23-2P
661467-34-1P 661467-35-2P 661467-36-3P 661467-38-5P 661467-39-6DP,
 tetraalkylammonium salts

RL: SPN (Synthetic preparation); PREP (Preparation)

(salts of pentacyclic or tetrapentalene derived anions, and their uses
 as ionic conductive materials)

IT 100-42-5D, Styrene, 5-membered ring- contg. derivs.

RL: TEM (Technical or engineered material use); USES (Uses)

(salts of pentacyclic or tetrapentalene derived anions, and their uses
 as ionic conductive materials)

IT 126-33-0D, Sulfolane, derivs.

RL: NUU (Other use, unclassified); USES (Uses)

(solvent for title compds.; salts of pentacyclic or tetrapentalene
 derived anions, and their uses as ionic conductive materials)

IT 156118-35-3DP, 2-(5-cyano-1,3,4-triazole)-4,4-difluorobutyl-, lithium salt

RL: PUR (Purification or recovery); SPN (Synthetic preparation); PREP

(Preparation)

(surfactant and antistatic; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

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Full Text	Citing References
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DN 139:39126

ED Entered STN: 13 Jun 2003

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IN Barbarich, Thomas J.

PA Yardney Technical Products, Inc., USA

SO U.S. Pat. Appl. Publ., 15 pp.

CODEN: USXXCO

DT Patent

LA English

IC ICM H01M010-40

ICS H01M004-58; H01M004-60

INCL 429324000; 429231950; 429231400; 429213000; 429303000; 429307000;
429338000; 429342000; 429332000; 429333000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2003108800	A1	20030612	US 2002-289784	20021107
	US 6852446	B2	20050208		
PRAI	US 2001-347083P	P	20011109		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 2003108800	ICM	H01M010-40
	ICS	H01M004-58; H01M004-60
	INCL	429324000; 429231950; 429231400; 429213000; 429303000; 429307000; 429338000; 429342000; 429332000; 429333000
US 2003108800	NCL	429/324.000

OS MARPAT 139:39126

AB A nonaq. elec. current producing electrochem. cell is provided comprising an anode and a cathode, an ionically permeable separator interposed between the anode and the cathode, and a nonaq. electrolyte, the electrolyte comprising an ionically conducting salt in a nonaq. medium, the ionically conducting salt corresponding to the formula:
 $M+(Z^*(J^*)_j(X^*)_x)-$, wherein: M is a lithium atom, Z^* is an anion group contg. two or more Lewis basic sites and comprising less than 50 atoms not including hydrogen atoms, J^* independently each occurrence is a Lewis acid coordinated to at least one Lewis basic site of Z^* , and optionally two or more such J^* groups may be joined together in a moiety having multiple Lewis acidic functionality, X^* independently each occurrence is selected from the group consisting of H, C1-4 alkyl, alkoxide, halide and mixts. thereof, j is an integer from 2 to 12, and x is an integer from 0 to 4.

ST lithium battery nonaq electrolyte

IT Polymers, uses

RL: DEV (Device component use); USES (Uses)

(gels; nonaq. electrolytes for lithium primary and secondary batteries)

IT Chalcogenides

Oxides (inorganic), uses

RL: DEV (Device component use); USES (Uses)

(lithiated; nonaq. electrolytes for lithium primary and secondary batteries)

IT Primary batteries

- Secondary batteries
(lithium; nonaq. electrolytes for lithium primary and secondary batteries)
- IT Glass, uses
RL: DEV (Device component use); USES (Uses)
(membrane; nonaq. electrolytes for lithium primary and secondary batteries)
- IT Battery electrolytes
Ionic conductivity
Polar solvents
(nonaq. electrolytes for lithium primary and secondary batteries)
- IT Esters, uses
Ethers, uses
Lactones
Nitriles, uses
Polyanilines
Sulfones
Transition metal chalcogenides
Transition metal oxides
RL: DEV (Device component use); USES (Uses)
(nonaq. electrolytes for lithium primary and secondary batteries)
- IT Disulfides
RL: DEV (Device component use); USES (Uses)
(org., redox polymers; nonaq. electrolytes for lithium primary and secondary batteries)
- IT Transition metal compounds
RL: DEV (Device component use); USES (Uses)
(oxysulfides; nonaq. electrolytes for lithium primary and secondary batteries)
- IT Lithium alloy, base
RL: DEV (Device component use); USES (Uses)
(nonaq. electrolytes for lithium primary and secondary batteries)
- IT 7440-44-0, Carbon, uses
RL: DEV (Device component use); USES (Uses)
(mesocarbon microbeads; nonaq. electrolytes for lithium primary and secondary batteries)
- IT 57-12-5, Cyanide, uses 60-29-7, Diethyl ether, uses 96-48-0, γ -Butyrolactone 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 109-99-9, Thf, uses 110-71-4, 1,2-Dimethoxyethane 120-73-0D, Purine, derivs. 504-66-5D, Dicyanamide, derivs. 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 646-06-0, Dioxolane 7439-93-2, Lithium, uses 7439-93-2D, Lithium, intercalation compd. 14343-69-2, Azide 17655-31-1, Amide 17997-24-9D, Methanetricarbonitrile, ion(1-), derivs. 25233-30-1, Polyaniline 25948-29-2, Carbon disulfide homopolymer 28737-40-8D, Squarate ion(2-), derivs. 32178-55-5D, Benzimidazolide, derivs. 34512-21-5D, derivs. 36954-03-7D, Imidazole anion, derivs. 39448-96-9, Graphite lithium 51719-91-6D, derivs. 64544-32-7D, derivs. 68146-66-7D, derivs. 81425-01-6D, derivs. 217309-42-7, Copper lithium nickel oxide $\text{Cu}_{0.2}\text{LiNi}_{0.8}\text{O}_2$ 261356-47-2D, Borate(1-), tetrakis(cyano- κC)-, derivs. 519040-72-3 527685-88-7 527685-89-8 527685-90-1 527685-91-2 527685-92-3 527685-93-4 527685-94-5 527685-95-6 527685-96-7 527685-98-9 527686-01-7 527686-04-0 527686-06-2 527686-08-4 541502-73-2D, derivs. 541502-74-3D, derivs.
RL: DEV (Device component use); USES (Uses)
(nonaq. electrolytes for lithium primary and secondary batteries)
- IT 55986-39-5P, Lithium imidazolide 148505-26-4P 464194-97-6P 519040-73-4P 519040-74-5P 519040-75-6P 527685-86-5P 527685-87-6P 527686-13-1P 527686-16-4P

RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(nonaq. electrolytes for lithium primary and secondary batteries)

IT 9002-88-4, Polyethylene

RL: DEV (Device component use); USES (Uses)

(separator; nonaq. electrolytes for lithium primary and secondary batteries)

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Anon; JP 2002260734 2002 CAPLUS

(2) LaPointe; US 6395671 B2 2002 CAPLUS

(3) Lapointe; J. Am. Chem. Soc. 2000, V122, P9560 CAPLUS

(4) Lee; US 6022643 A 2000 CAPLUS

(5) Lee; J. Electrochem. Soc. 1998, V145(8), P2813 CAPLUS

(6) Sun; Journal of the Electrochemical Society 1999, V146(10), P3655 CAPLUS

L3 ANSWER 3 OF 10 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text	Citing References
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AN 2001:301013 CAPLUS

DN 134:304215

ED Entered STN: 27 Apr 2001

TI Method for depositing nanolaminate thin films on sensitive surfaces

IN Elers, Kai-Erik; Haukka, Suvi P.; Saanila, Ville Antero; Kaipio, Sari Johanna; Soininen, Pekka Juha

PA Asm America, Inc., USA

SO PCT Int. Appl., 53 pp.

CODEN: PIXXD2

DT Patent

LA English

IC H01L021-768; H01L021-285; C23C016-00

CC 76-3 (Electric Phenomena)

Section cross-reference(s): 75

FAN.CNT 8

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001029893	A1	20010426	WO 2000-US28654	20001016
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KR, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
FI 9902233	A	20010416	FI 1999-2233	19991015
FI 9902234	A	20010416	FI 1999-2234	19991015
FI 9902235	A	20010416	FI 1999-2235	19991015
FI 2000000564	A	20010416	FI 2000-564	20000310
EP 1221178	A1	20020710	EP 2000-973583	20001016
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL				
JP 2003524888	T2	20030819	JP 2001-531142	20001016
US 6902763	B1	20050607	US 2002-49125	20001016
US 2002187256	A1	20021212	US 2002-210715	20020730
US 6821889	B2	20041123		
US 2003031807	A1	20030213	US 2002-246131	20020917
US 6800552	B2	20041005		
US 2005106877	A1	20050519	US 2004-969297	20041019
US 2005064098	A1	20050324	US 2004-990424	20041116

<u>PRAI</u>	<u>FI 1999-2233</u>	A	19991015
	<u>FI 1999-2234</u>	A	19991015
	<u>FI 1999-2235</u>	A	19991015
	<u>US 1999-175799P</u>	P	19991015
	<u>US 2000-176948P</u>	P	20000118
	<u>FI 2000-564</u>	A	20000310
	<u>US 1999-159799P</u>	P	19991015
	<u>US 2000-687204</u>	A1	20001013
	<u>US 2000-687205</u>	A1	20001013
	<u>WO 2000-US28654</u>	W	20001016
	<u>US 2002-210715</u>	A1	20020730

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
<u>WO 2001029893</u>	IC	H01L021-768IC H01L021-285IC C23C016-00
<u>WO 2001029893</u>	ECLA	C23C016/32; C23C016/44; C23C016/44A; C30B025/02+29/02; C30B025/02+29/36; C30B029/02; C30B029/36; C30B029/38; H01L021/285B4L; H01L021/768C3; H01L021/768C4
<u>FI 9902233</u>	ECLA	C23C016/32; C23C016/34; C23C016/44; C23C016/44A; C30B025/02+29/02; C30B025/02+29/36; C30B029/02; C30B029/36; C30B029/38; H01L021/285B4L; H01L021/768C3; H01L021/768C4
<u>FI 9902234</u>	ECLA	C23C016/32; C23C016/34; C23C016/44; C23C016/44A; C30B025/02+29/02; C30B025/02+29/36; C30B025/02+29/38; C30B029/02; C30B029/36; C30B029/38; H01L021/285B4L; H01L021/768C3; H01L021/768C4
<u>FI 2000000564</u>	ECLA	C23C016/32; C23C016/34; C23C016/44; C23C016/44A; C30B025/02+29/02; C30B025/02+29/36; C30B025/02+29/38; C30B029/02; C30B029/36; C30B029/38; H01L021/285B4L; H01L021/768C3; H01L021/768C4
<u>EP 1221178</u>	ECLA	C23C016/32; C23C016/44; C23C016/44A; C30B025/02+29/02; C30B025/02+29/36; C30B029/02; C30B029/36; C30B029/38; H01L021/285B4L; H01L021/768C3; H01L021/768C4
<u>US 6902763</u>	NCL	427/250.000; 427/252.000; 427/255.150; 427/255.230; 427/255.260; 427/255.280; 427/255.390; 427/255.700
	ECLA	C30B025/02; C30B029/02; C30B029/36; C30B029/38
<u>US 2002187256</u>	NCL	427/096.800
	ECLA	C23C016/02H; C23C016/04D; C23C016/08; C23C016/32; C23C016/34; C23C016/44; C23C016/44A; C30B025/02+29/02; C30B025/02+29/36; C30B025/02+29/38; C30B025/14; C30B029/02; C30B029/36; C30B029/38; H01L021/285B4H2; H01L021/285B4L; H01L021/768B2D; H01L021/768C; H01L021/768C3; H01L021/768C4; H01L023/522E; H01L023/532M1A4; H01L023/532M1C; H01L023/532M1C4; H01L023/532M1N; H01L023/532M1N4; H01L023/532N; H01L023/532N4
<u>US 2003031807</u>	NCL	427/569.000
	ECLA	C23C016/02H; C23C016/04D; C23C016/08; C23C016/32; C23C016/34; C23C016/44; C23C016/44A; C30B025/02+29/02; C30B025/02+29/36; C30B025/02+29/38; C30B029/02; C30B029/36; C30B029/38; H01L021/285B4H2; H01L021/285B4L; H01L021/768B2D; H01L021/768C; H01L021/768C3; H01L021/768C4; H01L023/522E; H01L023/532M1A4; H01L023/532M1C4; H01L023/532M1N; H01L023/532M1N4; H01L023/532N; H01L023/532N4
<u>US 2005106877</u>	NCL	438/689.000
	ECLA	C23C016/32; C23C016/34; C23C016/44; C23C016/44A; C30B025/02+29/02; C30B025/02+29/36; C30B025/02+29/38; C30B029/02; C30B029/36; C30B029/38; H01L021/285B4L; H01L021/768C3; H01L021/768C4

US 2005064098 NCL 427/250.000
ECLA C23C016/02H; C23C016/04D; C23C016/08; C23C016/32;
C23C016/34; C23C016/44; C23C016/44A; C30B025/02+29/02;
C30B025/02+29/36; C30B025/02+29/38; C30B025/14;
C30B029/02; C30B029/36; C30B029/38; H01L021/285B4H2;
H01L021/285B4L; H01L021/768B2D; H01L021/768C;
H01L021/768C3; H01L021/768C4; H01L023/522E;
H01L023/532M1A4; H01L023/532M1C4; H01L023/532M1N;
H01L023/532M1N4; H01L023/532N; H01L023/532N4

AB The present method provides tools for growing conformal metal nitride, metal carbide and metal thin films, and nanolaminate structures incorporating these films, from aggressive chems. The amt. of corrosive chem. compds., such as H halides, is reduced during the deposition of **transition metal, transition metal carbide and transition metal nitride** thin films on various surfaces, such as metals and oxides. Getter compds. protect surfaces sensitive to H halides and NH4+ halides, such as Al, Cu, Si oxide and the layers being deposited, against corrosion. Nanolaminate structures incorporating metal nitrides, such as Ti nitride and W nitride, and metal carbides, and methods for forming the same, are also disclosed.

ST depositing **transition metal carbide nitride nanolaminate film** sensitive surface

IT Monolayers
(chemisorption; depositing **transition metal, transition metal carbide, transition metal nitride nanolaminate thin films** on sensitive surfaces)

IT Interconnections (electric)
(copper and aluminum; depositing **transition metal, transition metal carbide, transition metal nitride nanolaminate thin films** on sensitive surfaces)

IT Electrodeposition
(copper film; depositing **transition metal, transition metal carbide, transition metal nitride nanolaminate thin films** on sensitive surfaces)

IT Atomic layer epitaxy
Gettering
(depositing **transition metal, transition metal carbide, transition metal nitride nanolaminate thin films** on sensitive surfaces)

IT Hydrogen halides
RL: BYP (Byproduct); PREP (Preparation)
(depositing **transition metal, transition metal carbide, transition metal nitride nanolaminate thin films** on sensitive surfaces)

IT **Transition metal carbides**
Transition metal nitrides
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(depositing **transition metal, transition metal carbide, transition metal nitride nanolaminate thin films** on sensitive surfaces)

IT Integrated circuits
(fabrication of; depositing **transition metal, transition metal carbide, transition metal nitride nanolaminate thin films** on sensitive surfaces)

IT Chemisorption
(monolayer; depositing **transition metal, transition metal carbide, transition metal nitride nanolaminate thin films** on sensitive surfaces)

IT Films

- (multilayer, thin; depositing **transition metal**, **transition metal carbide**, **transition metal nitride nanolaminate thin films on sensitive surfaces**)
- IT Laminated materials
(nano-; depositing **transition metal**, **transition metal carbide**, **transition metal nitride nanolaminate thin films on sensitive surfaces**)
- IT Corrosion
(on sensitive surfaces; depositing **transition metal**, **transition metal carbide**, **transition metal nitride nanolaminate thin films on sensitive surfaces**)
- IT Vapor deposition process
(plasma, copper or silica film; depositing **transition metal**, **transition metal carbide**, **transition metal nitride nanolaminate thin films on sensitive surfaces**)
- IT 7429-90-5, Aluminum, processes 7440-50-8, Copper, processes
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(conductive films; depositing **transition metal**, **transition metal carbide**, **transition metal nitride nanolaminate thin films on sensitive surfaces**)
- IT 25583-20-4, Titanium nitride (TiN) 37359-53-8, Tungsten nitride
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(depositing **transition metal**, **transition metal carbide**, **transition metal nitride nanolaminate thin films on sensitive surfaces**)
- IT 7647-01-0P, Hydrogen **chloride**, preparation 7664-39-3P, Hydrogen **fluoride**, preparation 12125-01-8P, Ammonium **fluoride**
RL: BYP (Byproduct); PREP (Preparation)
(deposition byproducts; depositing **transition metal**, **transition metal carbide**, **transition metal nitride nanolaminate thin films on sensitive surfaces**)
- IT 7550-45-0, Titanium tetrachloride, processes 7664-41-7, Ammonia, processes 7783-82-6, Tungsten hexafluoride
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(deposition gas reactants; depositing **transition metal**, **transition metal carbide**, **transition metal nitride nanolaminate thin films on sensitive surfaces**)
- IT 11105-01-4, Silicon oxynitride 11130-73-7, Tungsten carbide 12033-62-4, Tantalum nitride 12033-89-5, Silicon nitride, processes
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(diffusion barrier; depositing **transition metal**, **transition metal carbide**, **transition metal nitride nanolaminate thin films on sensitive surfaces**)
- IT 74-85-1, Ethene, processes 74-89-5, Methyl amine, processes 75-24-1, Trimethylaluminum 97-94-9, Triethyl boron 631-36-7, Tetraethyl silicon 7782-65-2, Germane 7803-62-5, Silane, processes 12152-72-6, Cyclohexadieneiron tricarbonyl 12189-86-5, Ferrocene, 1,1'-bis(trimethylsilyl)- 13283-31-3, Borane, processes 19287-45-7, Diborane
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(gettering agents; depositing **transition metal**, **transition metal carbide**, **transition metal nitride nanolaminate thin films on sensitive surfaces**)
- IT 109-89-7, Diethylamine, processes 121-44-8, Triethylamine, processes

302-01-2, Hydrazine, processes 624-90-8, Methyl azide
7782-79-8, Hydrogen azide 19624-22-7, Pentaborane (B5H9)
30260-66-3, Dimethyl hydrazine 186958-04-3, Nitrogen
 fluoride

RL: PEP (Physical, engineering or chemical process); PROC (Process)
 (second source materials; depositing transition metal
 , transition metal carbide, transition
 metal nitride nanolaminate thin films on sensitive surfaces)

IT 78-10-4, TEOS

RL: PEP (Physical, engineering or chemical process); PROC (Process)
 (silica precursor; depositing transition metal,
 transition metal carbide, transition
 metal nitride nanolaminate thin films on sensitive surfaces)

IT 7440-21-3, Silicon, processes

RL: DEV (Device component use); PEP (Physical, engineering or chemical
 process); PROC (Process); USES (Uses)
 (substrate; depositing transition metal,
 transition metal carbide, transition
 metal nitride nanolaminate thin films on sensitive surfaces)

IT 7631-86-9, Silica, processes

RL: DEV (Device component use); PEP (Physical, engineering or chemical
 process); PROC (Process); USES (Uses)
 (thin films; depositing transition metal,
 transition metal carbide, transition
 metal nitride nanolaminate thin films on sensitive surfaces)

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
 RE

- (1) Bushnell, P; US 5947710 A 1999
- (2) Genus Inc; WO 0054320 A 2000 CAPLUS
- (3) Hultman, L; ZEITSCHRIFT FUR METALLKUNDE 1999, V90(10), P803 CAPLUS
- (4) Sherman, A; US 5916365 A 1999 CAPLUS

L3 ANSWER 4 OF 10 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text	Citing References
AN 2000:862646	CAPLUS
DN 134:246527	
ED Entered STN: 11 Dec 2000	
TI Iron, cobalt and vanadium complexes of the N(CH ₂ CH ₂ S) ₃ - ligand with chloride, azide, cyanide and carbonyl co-ligands	
AU Davies, Sian C.; Durrant, Marcus C.; Hughes, David L.; Richards, Raymond L.; Sanders, J. Roger	
CS Department of Biological Chemistry, John Innes Centre, Norwich, NR4 7UH, UK	
SO Dalton (2000), (24), 4694-4701 CODEN: DALTFG	
PB Royal Society of Chemistry	
DT Journal	
LA English	
CC 78-7 (Inorganic Chemicals and Reactions) Section cross-reference(s): 75	
OS CASREACT 134:246527	
AB Reaction of [Fe(acac) ₃], Et ₄ NCl and N(CH ₂ CH ₂ SH) ₃ (NS ₃ H ₃) in MeCN gave [Et ₄ N][FeCl(NS ₃)] (1) and after metathesis the azide [Et ₄ N][Fe(NS ₃)(NS ₃)] (2), but reaction of [Fe(acac) ₃], R ₄ NOAc and NS ₃ H ₃ in MeCN gave [R ₄ N][Fe ₄ (NS ₃) ₃] (R = Et, 3; Me, 4). Complex 1 is reduced under various conditions giving R'[Fe(NS ₃)] (R' = Et ₄ N, 5; Tl, 6; N ₂ H ₅ , 7) which probably contain sulfur-bridged [{Fe(NS ₃)} _n] ⁿ⁻ anions. Under CO, 1 is reduced to the paramagnetic [Et ₄ N][Fe(NS ₃)(CO)] (8) from which Tl[Fe(NS ₃)(CO)] (9) may be made by metathesis. Compd. 8 reacts with metal	

chlorides in acetonitrile giving trinuclear $[M\{Fe(NS_3)(CO)\}_2-S,S']$ ($M = Fe, 10; Co, 11$). The above complexes were characterized by microanal., IR and Mossbauer spectra and magnetic measurements; crystal structure detns. were carried out on 1, 2, 8, 10, and 11. The properties of the anions of 1 and 8 and of the hypothetical anions $[Fe(NS_3)]^-$ and $[Fe(N_2)(NS_3)]^-$ were studied by d. functional theory calcns. Compds. 8 and 10 have $\nu(CO)$ in the range 1960-1880 cm^{-1} and model aspects of carbon monoxide binding to the cofactor of nitrogenase. Related cyanide complexes $[Et_4N][M(NS_3)(CN)]$ ($M = Co, 12; V, 13$) were characterized, 12 by x-ray anal.

- ST crystal structure iron cobalt nitrilotriethanethiolato complex; nitrilotriethanethiolate **transition metal** complex prepn structure; iron nitrilotriethanethiolato complex prepn structure; cobalt nitrilotriethanethiolato complex prepn structure; vanadium nitrilotriethanethiolato complex prepn
- IT Binding energy
(DFT calcns. of optimized mol. structure and binding energy of iron thiolato and nitrilotriethanethiolato complexes)
- IT **Transition metal** complexes
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(amino thiol, nitrilotriethanethiol; prepn. and crystal and mol. structure of iron, cobalt and vanadium nitrilotriethanethiolato complexes)
- IT Thiols (organic), preparation
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(amino, **transition metal** complexes, nitrilotriethanethiol; prepn. and crystal and mol. structure of iron, cobalt and vanadium nitrilotriethanethiolato complexes)
- IT Crystal structure
Molecular structure
(of iron and cobalt nitrilotriethanethiolato complexes)
- IT Molecular structure
(optimized; DFT calcns. of optimized mol. structure and binding energy of iron thiolato and nitrilotriethanethiolato complexes)
- IT 220024-65-7 329967-90-0 329968-03-8 329968-05-0 329968-07-2
329968-09-4 329968-13-0
RL: PRP (Properties)
(DFT calcns. of optimized mol. structure and binding energy in study of iron nitrilotriethanethiolato complexes)
- IT 220024-67-9P 329967-88-6P 329967-97-7P 329967-99-9P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and crystal and mol. structure)
- IT 4201-86-9DP, 2,2',2''-Nitrilotriethanethiol, iron trinuclear complexes
7439-89-6DP, Iron, nitrilotriethanethiol trinuclear complexes, preparation
291748-87-3P 329967-91-1P 329967-93-3P 329967-94-4P 329967-96-6P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)
- IT 220024-64-6P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn., crystal and mol. structure and metathesis and redn. reactions)
- IT 220024-66-8P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn., crystal and mol. structure and reactions)
- IT 18909-92-7, Bis(acetonitrile)dichlorocobalt 21679-46-9, Tris(acetylacetonato)cobalt 87114-91-8, Bis(acetonitrile)dichloroiron 193409-25-5 329968-00-5, Dichlorotris(**dimethyl** sulfoxide)iron
RL: RCT (Reactant); RACT (Reactant or reagent)
(reactant for prepn. of **transition metal** nitrilotriethanethiolato complex)

IT 4201-86-9, 2,2',2''-Nitrilotriethanethiol 14024-18-1,
Tris(acetylacetonato)iron

RL: RCT (Reactant); RACT (Reactant or reagent)
(reactant for prepn. of **transition metal**
nitrilotriethanethiolato complexes)

RE.CNT 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD
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L3 ANSWER 5 OF 10 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text	Citing References
AN	2000:690434 CAPLUS
DN	134:17149
ED	Entered STN: 01 Oct 2000
TI	Asymmetric cyclopropanation of vinyl fluorides : access to enantiopure monofluorinated cyclopropane carboxylates
AU	Meyer, Oliver G. J.; Frohlich, Roland; Haufe, Gunter
CS	Organisch-Chemisches Institut, Westfalische Wilhelms-Universitat Munster, Munster, D-48149, Germany
SO	Synthesis (2000), (10), 1479-1490 CODEN: SYNTBF; ISSN: 0039-7881
PB	Georg Thieme Verlag
DT	Journal
LA	English
CC	21-2 (General Organic Chemistry) Section cross-reference(s): 67, 75
OS	CASREACT 134:17149

- AB The **transition metal** catalyzed cyclopropanation with alkyl diazoacetates of aliph. or arom. vinyl **fluorides**, prepd. from the corresponding alkenes by bromofluorination and subsequent dehydrobromination, provides a smooth access to racemic 1:1 mixts. of cis/trans isomeric monofluorinated cyclopropanecarboxylates. The application of enantiopure bis(oxazoline) ligands and Cu(I) triflate makes the reaction trans-diastereoselective and enantioselective. For example, treatment of α -fluorostyrene with tert-Bu diazoacetate in the presence of 2 mol% of the catalyst prepd. from (S)-tert-leucine-based 2,2-bis(4-tert-butyl-2-oxazolin-2-yl)propane and CuOTf gave a 4:1 mixt. of trans-2-fluoro-2-phenylcyclopropanecarboxylate (4e) with 93% ee and the corresponding cis-isomer 5e with 89% ee. The abs. configuration of the trans-isomer 4e is (1S,2S) by x-ray structure anal. of a deriv.
- ST crystal structure fluorocyclopropanecarboxylic acid amide; mol structure fluorocyclopropanecarboxylic acid amide; asym cyclopropanation vinyl **fluoride** copper oxazoline complex catalysis; cycloaddn alkyl diazoacetate vinyl **fluoride**
- IT Crystal structure
Molecular structure
(of fluorocyclopropanecarboxylic acids and amide)
- IT Candida cylindracea
(stereoselective hydrolysis of fluorocyclopropanecarboxylic ester catalyzed by)
- IT Cyclopropanation catalysts
(stereoselective; copper-oxazoline-deriv. complexes for [2+1]-cycloaddn. of vinyl **fluorides** with alkyl diazoacetates)
- IT Hydrolysis
(stereoselective; of fluorocyclopropanecarboxylic ester in presence of Candida rugosa)
- IT Cyclopropanation
(stereoselective; of vinyl **fluorides** using alkyl diazoacetates in presence of copper-oxazoline-deriv. complexes)
- IT 131833-92-6, 2,2-Bis((S)-4-isopropyl-2-oxazolin-2-yl)propane
131833-93-7, 2,2-Bis((S)-4-tert-butyl-2-oxazolin-2-yl)propane
180036-68-4, (4R,5R)-4,5-Bis((S)-4-isopropyl-2-oxazolin-2-yl)-2,2-dimethyl-1,3-dioxolane
RL: CAT (Catalyst use); USES (Uses)
(asym. cyclopropanation of vinyl **fluorides** by alkyl diazoacetates catalyzed by copper triflate and)
- IT 309242-41-9P 309242-42-0P 309242-43-1P 309242-44-2P
RL: SPN (Synthetic preparation); PREP (Preparation)
(asym. cyclopropanation of vinyl **fluorides** by alkyl diazoacetates catalyzed by copper triflate and oxazoline derivs.)
- IT 42152-44-3, Copper(1+) trifluoromethanesulfonate
RL: CAT (Catalyst use); USES (Uses)
(asym. cyclopropanation of vinyl **fluorides** by alkyl diazoacetates catalyzed by oxazoline derivs. and)
- IT 63254-50-2, (-)-Menthyl diazoacetate
RL: RCT (Reactant); RACT (Reactant or reagent)
(asym. cyclopropanations of vinyl **fluorides** by alkyl diazoacetate catalyzed by copper triflate and oxazoline deriv.)
- IT 106-40-1, 4-Bromoaniline
RL: RCT (Reactant); RACT (Reactant or reagent)
(condensation with fluorocyclopropanecarbonyl **chloride**)
- IT 309242-52-2P 309242-53-3P 309242-54-4P 309242-55-5P 309242-56-6P
309242-57-7P 309242-58-8P
RL: SPN (Synthetic preparation); PREP (Preparation)
(copper-catalyzed asym. cyclopropanation of vinyl **fluorides** by alkyl diazoacetates giving)
- IT 13395-16-9, Bis(acetylacetonato)copper

RL: CAT (Catalyst use); USES (Uses)

(cyclopropanation of vinyl **fluorides** by alkyl diazoacetates catalyzed by)

IT 1073-67-2, p-Chlorovinylbenzene

RL: RCT (Reactant); RACT (Reactant or reagent)

(for prepn. of 1-(2-bromo-1-fluoroethyl)-4-chlorobenzene)

IT 2158-14-7, p-Acetamidobenzenesulfonyl **azide**

RL: RCT (Reactant); RACT (Reactant or reagent)

(for prepn. of tert-Bu diazoacetate)

IT 100-52-7, Benzaldehyde, reactions 123-11-5, 4-Methoxybenzaldehyde, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(for prepn. of vinyl **fluoride**)

IT 35059-50-8P, tert-Butyl diazoacetate

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(prepn. and asym. cyclopropanations of vinyl **fluorides** by alkyl diazoacetate catalyzed by copper triflate and oxazoline deriv.)

IT 309242-37-3P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(prepn. and attempted hydrolysis in presence of lipases)

IT 309242-46-4P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (prepn. and crystal structure of)

IT 20405-77-0P, (E)-1-Fluoro-2-phenylethene 26946-13-4P, (E)-1-Fluoro-2-(4-methoxyphenyl)ethene

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(prepn. and cyclopropanation by Et diazoacetate catalyzed by copper/rhodium catalysts)

IT 309242-33-9P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(prepn. and lipase-catalyzed stereoselective hydrolysis of)

IT 106263-12-1P, 1-(4-Chlorophenyl)-1-fluoroethene

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(prepn. and sym. and asym. cyclopropanations by alkyl diazoacetates catalyzed by copper compds.)

IT 242148-56-7P, 1-(2-Bromo-1-fluoroethyl)-4-chlorobenzene

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(prepn. and use in prepn. of vinyl **fluoride**)

IT 309242-34-0P 309242-35-1P 309242-36-2P 309242-38-4P 309242-39-5P
309242-40-8P 309242-47-5P 309242-48-6P 309242-51-1P

RL: SPN (Synthetic preparation); PREP (Preparation)

(prepn. of)

IT 309242-45-3P

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(prepn., crystal structure, and N-Boc-protected fluorocyclopropylamine)

IT 309242-31-7P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(stereoselective synthesis and acid hydrolysis of)

IT 309242-49-7P, (1R,2R)-2-Fluoro-2-phenylcyclopropanecarboxylic acid

309242-50-0P, (1S,2S)-Ethyl 2-fluoro-2-phenylcyclopropanecarboxylate

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

- (stereoselective synthesis and conversion to amide)
- IT 309242-30-6P, (1S,2S)-2-Fluoro-2-phenylcyclopropanecarboxylic
(4-Bromophenyl)amide
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(stereoselective synthesis and crystal structure of)
- IT 309242-32-8P
RL: SPN (Synthetic preparation); PREP (Preparation)
(stereoselective synthesis of)
- IT 696-31-1, 1-Fluoro-1-phenylethene 14251-63-9, (E)-1-Fluoro-1-phenyl-1-
propene 203928-81-8, 2-Fluoro-1-hexene
RL: RCT (Reactant); RACT (Reactant or reagent)
(sym. and asym. cyclopropanations by alkyl diazoacetates catalyzed by
copper compds.)
- IT 623-73-4, Ethyl diazoacetate
RL: RCT (Reactant); RACT (Reactant or reagent)
(sym. and asym. cyclopropanations of vinyl fluorides by alkyl
diazoacetates catalyzed by copper compds.)

RE.CNT 81 THERE ARE 81 CITED REFERENCES AVAILABLE FOR THIS RECORD
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L3 ANSWER 6 OF 10 CAPLUS COPYRIGHT 2005 ACS on STN

	Full Text	Citing References
AN	2000:305602	CAPLUS
DN	132:308843	
ED	Entered STN: 11 May 2000	
TI	Carbene transition metal catalysts for polymerization	
IN	Cavell, Ronald G.; Wang, Qinyan; Babu, Ruppa P. Kamalesh; Kasani, Aparna	
PA	The Governors of the University of Alberta, Can.	
SO	U.S., 17 pp., Cont.-in-part of U.S. Ser. No. 216,041, abandoned.	
	CODEN: USXXAM	
DT	Patent	
LA	English	
IC	ICM C08F004-06	
	ICS C08F004-44; C07F009-02	
INCL	526131000	
CC	35-3 (Chemistry of Synthetic High Polymers)	

Section cross-reference(s): 29, 67, 78

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	<u>US 6060568</u>	A	20000509	<u>US 1999-377233</u>	19990819
	<u>CA 2291527</u>	AA	20000618	<u>CA 1999-2291527</u>	19991203
	<u>US 6313331</u>	B1	20011106	<u>US 2000-513682</u>	20000225
PRAI	<u>US 1998-216041</u>	B2	19981218		
	<u>US 1999-377233</u>	A	19990819		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
<u>US 6060568</u>	ICM	C08F004-06
	ICS	C08F004-44; C07F009-02
	INCL	526131000
<u>US 6060568</u>	NCL	526/131.000; 502/103.000; 502/117.000; 526/160.000; 526/161.000; 534/015.000; 556/001.000; 556/018.000; 556/022.000; 556/042.000; 556/052.000; 556/058.000; 556/121.000; 556/140.000
	ECLA	C07F009/535D; C08F010/00+4/52; C08F010/00+4/659
<u>US 6313331</u>	NCL	556/018.000; 502/103.000; 502/117.000; 526/131.000; 526/160.000; 526/161.000; 534/015.000; 556/001.000; 556/022.000; 556/042.000; 556/052.000; 556/058.000; 556/121.000; 556/140.000
	ECLA	C07F009/535D; C08F010/00+4/52; C08F010/00+4/659

OS MARPAT 132:308843

AB The present invention relates to novel complexes of (transition) metals contg. ligands having phosphorus centers supporting a carbene structure or heteroalkane radical bonded to the (transition) metal. Ethylene was polymd. using [ZrCl₂[C(Ph₂PdNSiMe₃)₂]] and methylaluminoxane catalysts.

ST transition metal carbene complex catalyst olefin polymn

IT Aluminoxanes

RL: CAT (Catalyst use); USES (Uses)

(Me; carbene transition metal catalysts for polymn.)

IT Aluminoxanes

RL: CAT (Catalyst use); USES (Uses)

(activator; carbene transition metal catalysts for polymn.)

IT Polymerization catalysts

(carbene transition metal catalysts for polymn.)

IT Rare earth complexes

Transition metal complexes

RL: CAT (Catalyst use); USES (Uses)

(carbene; carbene transition metal catalysts for polymn.)

IT 1109-15-5, Tris(pentafluorophenyl) boron 118612-00-3, N,N-Dimethylaniliniumtetrakis(pentafluorophenyl) borate 136040-19-2,

Triphenylmethylmethyl tetrakis(pentafluorophenyl) borate

RL: CAT (Catalyst use); USES (Uses)

(activator; carbene transition metal catalysts for polymn.)

IT 229957-83-9P 246543-91-9P 258339-13-8P 266001-98-3P 266001-99-4P266002-03-3P 266002-04-4P 266002-05-5P

RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)

(carbene transition metal catalysts for polymn.)

IT 9002-88-4P, Polyethylene

RL: IMF (Industrial manufacture); PREP (Preparation)

(carbene transition metal catalysts for polymn.)

IT 230969-42-3P 245679-04-3P 246543-89-5P 266001-95-0P 266001-96-1P
266002-00-0P 266002-02-2P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(carbene transition metal catalysts for polymn.)

IT 75-16-1, Methylmagnesium bromide 544-97-8, Zinc dimethyl 591-51-5, Phenyllithium 768-95-6, Tricyclo[3.3.1.1^{3,7}]decan-1-ol 773-82-0, Pentafluorobenzonitrile 2071-20-7, Bis(diphenylphosphino)methane 4411-25-0, Adamantyl isocyanate 4648-54-8, Trimethylsilyl azide 21959-01-3 24356-01-2, Zirconium tetrabenzyl 24886-73-5 53380-82-8 70969-28-7 137349-65-6 174749-75-8

RL: RCT (Reactant); RACT (Reactant or reagent)

(carbene transition metal catalysts for polymn.)

RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD

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L3 ANSWER 7 OF 10 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text	Citing References
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AN 1998:102992 CAPLUS

DN 128:168981

ED Entered STN: 20 Feb 1998

TI Hydroformylation of olefins in a two-phase system, and transition metal diphosphine complexes as catalysts

IN Reetz, Manfred Theodor; Waldvogel, Siegfried

PA Studiengesellschaft Kohle m.b.H., Germany

SO Ger. Offen., 15 pp.

CODEN: GWXXBX

DT Patent

LA German

IC ICM C08B037-16

ICS C07C045-50; C07C047-00

CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)

Section cross-reference(s): 23, 29, 67

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
<u>DE 19631322</u>	A1	19980205	<u>DE 1996-19631322</u>	19960802
<u>CA 2262561</u>	AA	19980212	<u>CA 1997-2262561</u>	19970729
<u>WO 9805618</u>	A2	19980212	<u>WO 1997-EP4117</u>	19970729

W: CA, JP, US

RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE

EP 923521 A2 19990623 EP 1997-941903 19970729

EP 923521 B1 20010822

R: AT, BE, CH, DE, DK, ES, FR, GB, IT, LI, LU, NL, SE, IE

JP 2001506285	T2	20010515	JP 1998-507569	19970729
AT 204561	E	20010915	AT 1997-941903	19970729
US 6087481	A	20000711	US 1999-230575	19990127
PRAI DE 1996-19631322	A	19960802		
WO 1997-EP4117	W	19970729		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
DE 19631322	ICM	C08B037-16
	ICS	C07C045-50; C07C047-00
DE 19631322	ECLA	C07C045/50; C07C067/347+69/716; C08B037/00M2B
WO 9805618	ECLA	C07C045/50; C07C067/347+69/716; C08B037/00M2B
US 6087481	NCL	536/018.700; 536/120.000; 536/123.100; 568/451.000; 568/454.000
	ECLA	C07C045/50; C07C067/347+69/716; C08B037/00M2B

OS MARPAT 128:168981

AB Aliph. or alicyclic alkenes, either terminal or internal, in an org. phase are hydroformylated in the presence of an aq. phase contg. a catalyst which is a Group VIII metal complex of a β -cyclodextrin deriv. having a (R2PCH2)2N substituent (R = alkyl, aryl) in the 6-position. Thus, β -cyclodextrin was tosylated, converted to the **azide**, reduce to the amine, and treated with Ph2P+(CH2OH)2 Cl- to give 6A-bis(diphenylphosphinomethyl)amino-6A-desoxy- β -cyclodextrin, which was converted to a Co complex and used in hydroformylation of 1-octene at 60°/100 bars for 18 h, producing aldehyde in 95% yield, with n-/iso- ratio 3.38.

ST cobalt diphosphine complex.hydroformylation catalyst; cyclodextrin diphosphine deriv cobalt complex

IT Hydroformylation catalysts

(hydroformylation of olefins with cyclodextrin-linked **transition metal** diphosphine complexes as catalysts)

IT Hydroformylation

(two-phase; hydroformylation of olefins with **transition metal** diphosphine complexes as catalysts)

IT 35138-22-8, Bis(1,5-cyclooctadiene)rhodium tetrafluoroborate

RL: CAT (Catalyst use); USES (Uses)

(hydroformylation of olefins with **transition metal** diphosphine complexes as catalysts)

IT 191103-02-3P

RL: CAT (Catalyst use); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)

(hydroformylation of olefins with **transition metal** diphosphine complexes as catalysts)

IT 191102-94-0P 191103-03-4P 191103-04-5P 191103-06-7P 202815-44-9P

202845-36-1P 202845-37-2P 202845-38-3P 202924-98-9P

RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(hydroformylation of olefins with **transition metal** diphosphine complexes as catalysts)

IT 93-53-8P, α -Methylbenzeneacetaldehyde 104-53-0P, Benzenepropanal

111-71-7P, Heptanal 112-44-7P, Undecanal 124-19-6P, Nonanal

872-53-7P, Cyclopentanecarboxaldehyde 925-54-2P, 2-Methylhexanal

926-36-3P, 4,4-Dimethylpentanal 4361-28-8P, Cyclohexanepropanal

5442-00-2P 5664-21-1P, Cyclohexaneethanal 6688-11-5P,

Cyclooctanecarboxaldehyde 7786-29-0P, 2-Methyloctanal 10486-19-8P,

Tridecanal 17206-62-1P, 2-Methylcyclopentanecarboxaldehyde

17408-48-9P, 2,3,3-Trimethylbutanal 19009-56-4P, 2-Methyldecanal

19269-28-4P, 3-Methylhexanal 22092-54-2P, 2-Ethylpentanal 22858-74-8P,

3-Cyclohexene-1-propanal 27008-12-4P 37596-36-4P, 2-Methyldodecanal

RL: IMF (Industrial manufacture); PREP (Preparation)
(hydroformylation of olefins with **transition metal**
diphosphine complexes as catalysts)

IT 100-40-3, 4-Vinylcyclohexene 100-42-5, reactions 111-66-0, 1-Octene
112-41-4, 1-Dodecene 112-62-9, Methyl oleate 142-29-0, Cyclopentene
558-37-2, 3,3-Dimethyl-1-butene 592-41-6, 1-Hexene, reactions
693-89-0, 1-Methylcyclopentene 695-12-5, Vinylcyclohexane 763-29-1,
2-Methyl-1-pentene 872-05-9, 1-Decene 931-87-3, cis-Cyclooctene
1192-37-6, Methylenecyclohexane 4490-75-9, N-(2-
Mercaptoethyl)phthalimide 7585-39-9, β -Cyclodextrin 7642-09-3,
cis-3-Hexene 13269-52-8, trans-3-Hexene 18162-48-6,
tert-Butylchlorodimethylsilane 39801-32-6, N-(3-
Mercaptopropyl)phthalimide 96776-80-6, Bis(hydroxymethyl)diphenylphospho
nium **chloride** 118312-98-4, N-(4-Mercaptobutyl)phthalimide
RL: RCT (Reactant); RACT (Reactant or reagent)

(hydroformylation of olefins with **transition metal**
diphosphine complexes as catalysts)

IT 29390-67-8P, 6A-Amino-6A-deoxy- β -cyclodextrin 67217-55-4P
73667-73-9P 98169-85-8P 128262-67-9P 129867-48-7P 191103-00-1P
191103-01-2P 202815-40-5P 202815-41-6P 202815-42-7P 202815-43-8P
202924-95-6P 202924-96-7P 202924-97-8P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)

(hydroformylation of olefins with **transition metal**
diphosphine complexes as catalysts)

IT 68-12-2, DMF, uses

RL: NUU (Other use, unclassified); USES (Uses)

(in hydroformylation of olefins with **transition metal**
diphosphine complexes as catalysts)

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

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L3 ANSWER 8 OF 10 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text	Citing References
AN 1998:5127	CAPLUS
DN 128:88378	
ED Entered STN: 07 Jan 1998	
TI Polyvinylpyridine chloroaluminum borohydride as a new stable, and efficient reducing agent in organic synthesis	
AU Tamami, Bahman; Lakoraj, Moslem Mansour; Yeganeh, Hamid	
CS Department of Chemistry, Shiraz University, Shiraz, Iran	
SO Iranian Polymer Journal (1997), 6(3), 159-167	
CODEN: IPJOFF; ISSN: 1026-1265	
PB Polymer Research Center of Iran	
DT Journal	
LA English	
CC 21-2 (General Organic Chemistry)	
OS CASREACT 128:88378	
AB The unstable chloroaluminum borohydride, $\text{Al}(\text{BH}_4)\text{Cl}_2$, is stabilized on poly(vinylpyridine) which is used as an efficient and regenerable polymer supported transition-metal borohydride reagent for redn. of variety of org. compds. such as, aldehydes, ketones, acid chlorides , epoxides and azides . The reagent is unable to reduce, esters, amides, oximes, and	

nitro compds.

ST chloroaluminum borohydride polymer supported reducing agent; vinylpyridine polymer support reducing agent; aldehyde redn polymer supported chloroaluminum borohydride; ketone redn polymer supported chloroaluminum borohydride; acid **chloride** redn supported chloroaluminum borohydride; epoxide redn polymer supported chloroaluminum borohydride; **azide** redn polymer supported chloroaluminum borohydride

IT Acid **halides**

RL: RCT (Reactant); RACT (Reactant or reagent)

(acid **chlorides**; use of poly[vinylpyridine]-chloroaluminum borohydride as reducing agent for carbonyl compds., epoxides, acid **chlorides**, and **azides**)

IT Reducing agents

(use of poly[vinylpyridine]-chloroaluminum borohydride as reducing agent for carbonyl compds., epoxides, acid **chlorides**, and **azides**)

IT Aldehydes, reactions

Azides

Epoxides

Ketones, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(use of poly[vinylpyridine]-chloroaluminum borohydride as reducing agent for carbonyl compds., epoxides, acid **chlorides**, and **azides**)

IT 66-99-9, 2-Naphthalenecarboxaldehyde 83-33-0, 1-Indanone 89-98-5, 2-Chlorobenzaldehyde 96-09-3, Styrene oxide 98-86-2, Acetophenone, reactions 98-88-4, Benzoyl **chloride** 102-92-1, Cinnamoyl **chloride** 103-79-7, Phenylacetone 103-80-0, Phenylacetyl **chloride** 104-55-2, Cinnamaldehyde 104-87-0, 4-Methylbenzaldehyde 106-23-0, Citronellal 106-90-1 106-91-2 119-52-8, 4,4'-Dimethoxybenzoin 119-53-9, Benzoin 119-61-9, Benzophenone, reactions 120-57-0, Piperonal 120-92-3, Cyclopentanone 121-90-4, 3-Nitrobenzoyl **chloride** 122-01-0, 4-Chlorobenzoyl **chloride** 122-04-3, 4-Nitrobenzoyl **chloride** 122-57-6, Benzalacetone 122-60-1, (Phenoxymethyl)oxirane 122-78-1, Phenylacetaldehyde 123-11-5, 4-Methoxybenzaldehyde, reactions 514-15-8, Apocamphor 591-78-6, 2-Hexanone 622-79-7, Benzyl **azide** 1192-17-2, 2,2-Diethyloxirane 1516-60-5, 1-Azido-4-nitrobenzene 1713-33-3, 1-Methylcyclohexene oxide 2085-88-3, α -Methylstyrene oxide 2142-68-9, 2'-Chloroacetophenone 2788-86-5, p-Chlorostyrene oxide 3296-05-7, 1-Azido-4-chlorobenzene 3669-66-7 6921-40-0, 1-Azidonaphthalene 14901-07-6 18756-01-9 59611-34-6 71559-13-2, 2-Azidocyclohexanol 91890-91-4 170467-19-3 201028-85-5

RL: RCT (Reactant); RACT (Reactant or reagent)

(use of poly[vinylpyridine]-chloroaluminum borohydride as reducing agent for carbonyl compds., epoxides, acid **chlorides**, and **azides**)

IT 25232-41-1DP, Poly(4-vinylpyridine), dichloroaluminum borohydride complex 55874-51-6DP, poly[vinylpyridine]-supported

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(use of poly[vinylpyridine]-chloroaluminum borohydride as reducing agent for carbonyl compds., epoxides, acid **chlorides**, and **azides**)

IT 60-12-8P, Phenethyl alcohol 91-01-0P, Benzhydrol 96-41-3P, Cyclopentanol 97-95-0P, 2-Ethyl-1-butanol 98-85-1P, α -Methylbenzyl alcohol 100-01-6P, p-Nitroaniline, preparation 100-46-9P, Benzyl amine, preparation 100-51-6P, Benzyl alcohol, preparation 104-54-1P 105-13-5P, 4-Methoxybenzyl alcohol 106-22-9P,

Citronellol 106-47-8P, p-Chloroaniline, preparation 134-32-7P,
 1-Aminonaphthalene 492-70-6P, 1,2-Diphenylethylene glycol 495-76-1P,
 Piperonal 589-18-4P, 4-Methylbenzyl alcohol 619-25-0P, 3-Nitrobenzyl
 alcohol 619-73-8P, 4-Nitrobenzyl alcohol 626-93-7P, 2-Hexanol
698-87-3P, 1-Phenyl-2-propanol 873-63-2P, 3-Chlorobenzyl alcohol
1123-85-9P, β -Methylphenethyl alcohol 1592-38-7P,
 2-Naphthalenemethanol 1875-88-3P, 4-Chlorophenethyl alcohol 2761-08-2P
2761-09-3P 4464-76-0P 6180-61-6P, 3-Phenoxy-1-propanol 6351-10-6P,
 1-Indanol 6850-38-0P, 2-Aminocyclohexanol 6939-95-3P 7443-70-1P,
 cis-2-Methylcyclohexanol 7568-93-6P, α -(Aminomethyl)benzyl alcohol
17488-65-2P, 4-Phenyl-3-buten-2-ol 17849-38-6P, 2-Chlorobenzyl alcohol
27008-60-2P, 3-Buten-2-ol, 4-(2,6,6-trimethyl-1-cyclohexen-1-yl)-
30884-63-0P 59611-38-0P 126775-65-3P 170467-20-6P 180294-10-4P,
 2,7-Nonadien-1-ol, 4,8-dimethyl-, (E)- 201028-86-6P

RL: SPN (Synthetic preparation); PREP (Preparation)

(use of poly[vinylpyridine]-chloroaluminum borohydride as reducing
 agent for carbonyl compds., epoxides, acid chlorides, and
 azides)

RE.CNT 39 THERE ARE 39 CITED REFERENCES AVAILABLE FOR THIS RECORD

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1987
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L3 ANSWER 9 OF 10 CAPLUS COPYRIGHT 2005 ACS on STN

	Full Text	Citing References
AN	1992:235110	CAPLUS
DN	116:235110	
ED	Entered STN: 13 Jun 1992	
TI	Nucleophilic substitutions of 1-alkenylcyclopropyl esters and 1-alkynylcyclopropyl chlorides catalyzed by palladium(0)	
AU	Stolle, Andreas; Ollivier, Jean; Piras, Pier Paolo; Salaun, Jacques; De Meijere, Armin	
CS	Inst. Org. Chem., Georg-August-Univ., Goettingen, D-3400, Germany	
SO	Journal of the American Chemical Society (1992), 114(11), 4051-67 CODEN: JACSAT; ISSN: 0002-7863	
DT	Journal	
LA	English	
CC	24-2 (Alicyclic Compounds)	
OS	CASREACT 116:235110	
GI		



AB The 1-ethenylcyclopropyl sulfonates I (R = p-tolyl, Me) and 2-cyclopropylideneethyl esters II (R₁ = Ac, CO₂Et), readily available from 1-ethoxycyclopropanol, undergo regioselective Pd(0) catalyzed nucleophilic substitution via an unsym. 1,1-dimethylene-π-allyl complex. With stabilized anions (enolates of malonic ester, β-dicarbonyl compds., β-sulfonyl ester, and Schiff bases as well as acetate anion, sulfonamide anion, etc.) the nucleophilic substitution occurs at the terminal vinylic position exclusively, providing cyclopropylideneethyl derivs. as building blocks of high synthetic potential. Competition expts. disclosed that I (R = p-tolyl) and II (R₁ = Ac) are more reactive than dimethylallyl acetates. Use of chiral phosphines as ligands in the palladium catalyst can provide optically active methylenecyclopropane derivs. With phenyl-, methyl-, and even n-butylzinc **chloride** as nucleophiles, the reaction apparently proceeds with initial transfer of the org. residue to palladium, followed by reductive elimination entailing tertiary substitution on the cyclopropane ring exclusively; the same type of product is obtained with **azide** and bis(trimethylsilyl)amide. The site of hydride attack to yield redn. products depends on the hydride source. 1-Alkynylcyclopropyl **chlorides** III (R₂ = H, Me, Me₃Si) react only with organozinc **chlorides** (nonstabilized nucleophiles) to provide mixts. of ethenylidenecyclopropanes and alkynylcyclopropanes, via the σ-palladium complexes, while **chloride** III (R₂ = Ph) undergoes mainly redn. Other **transition metal** catalysts (Ni, Mo) also induce substitutions, but with poorer regioselectivity.

ST nucleophilic substitution alkenylcyclopropyl ester alkynylcyclopropyl **chloride**; palladium catalyst nucleophilic substitution; regiochem nucleophilic substitution alkenylcyclopropyl ester; cyclopropane ethylidene

IT Substitution reaction, nucleophilic
(of alkenyl cyclopropyl esters and alkynylcyclopropyl **chlorides**)

IT Regiochemistry
(of nucleophilic substitution reactions of cyclopropyl esters)

IT Substitution reaction catalysts

- (nucleophilic, palladium complexes, for alkenylcyclopropyl esters and alkynylcyclopropyl **chlorides**)
- IT 13837-45-1, 1-Ethoxycyclopropanol
RL: PROC (Process)
(Grignard propenylation of)
- IT 557-93-7, 2-Bromopropene
RL: RCT (Reactant); RACT (Reactant or reagent)
(Grignard reaction of, with cyclopropanone hemiacetal)
- IT 22935-31-5
RL: RCT (Reactant); RACT (Reactant or reagent)
(acylation of)
- IT 57951-60-7
RL: RCT (Reactant); RACT (Reactant or reagent)
(attempted substitution reaction of)
- IT 7681-65-4, Cuprous **iodide**
RL: CAT (Catalyst use); USES (Uses)
(catalysts, for Grignard methylation of (phenylethynyl)cyclopropyl carbonate)
- IT 14264-16-5, Bis(triphenylphosphine)nickel dichloride
RL: CAT (Catalyst use); USES (Uses)
(catalysts, for phenylation of vinylcyclopropyl tosylate)
- IT 14221-01-3, Tetrakis(triphenylphosphine)palladium
RL: CAT (Catalyst use); USES (Uses)
(catalysts, for substitution reactions of alkenylcyclopropyl and cyclopropylidene Et esters)
- IT 32005-36-0
RL: CAT (Catalyst use); USES (Uses)
(catalysts, for substitution reactions of alkenylcyclopropyl or cyclopropylidene Et esters and alkynylcyclopropyl **chlorides**)
- IT 74592-36-2
RL: RCT (Reactant); RACT (Reactant or reagent)
(hydride redn. or methylation of)
- IT 69555-14-2 112519-20-7 130715-13-8 130715-14-9 130715-15-0
130715-16-1 130715-17-2 130715-18-3
RL: RCT (Reactant); RACT (Reactant or reagent)
(lithiation and substitution reaction of, with alkenylcyclopropyl ester)
- IT 82979-27-9
RL: RCT (Reactant); RACT (Reactant or reagent)
(methylation-dehydrochlorination of)
- IT 1663-45-2, Dppe
RL: CAT (Catalyst use); USES (Uses)
(palladium catalysts contg., for substitution reactions of alkynylcyclopropyl and cyclopropylidene Et esters)
- IT 70624-84-9P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and acetylation of)
- IT 28974-51-8P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and acylation or oxidn. of)
- IT 136964-30-2P 136964-33-5P 136964-36-8P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and borohydride redn. of)
- IT 57951-63-0P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. and ethoxycarbonylation or chlorodehydroxylation of)
- IT 136964-35-7P

- RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. and ketenimine cleavage of)
- IT 139633-92-4P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)
(prepn. and sapon. of)
- IT 758-66-7P 22539-80-6P 73680-08-7P 130715-07-0P 130715-08-1P
139633-88-8P 139633-90-2P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)
(prepn. and substitution reaction of, palladium catalyst for)
- IT 73680-10-1P 130715-09-2P 136964-21-1P 136964-25-5P 136964-29-9P
136964-42-6P 139633-85-5P 139633-87-7P 139633-89-9P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)
(prepn. and substitution reaction of, palladium catalysts for)
- IT 75111-08-9P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)
(prepn. and substitution reaction of, redn. in)
- IT 40791-85-3P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)
(prepn. and tosylation of)
- IT 73680-09-8P 136964-24-4P 136964-41-5P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)
(prepn. and trifluoroacetylation of)
- IT 13905-10-7P 16958-35-3P 18712-30-6P 21777-85-5P 42311-14-8P
50462-85-6P 69447-96-7P 81798-12-1P 136964-26-6P 136964-27-7P
136964-28-8P 136964-31-3P 136964-32-4P 136964-34-6P 136964-37-9P
136964-38-0P 139633-86-6P 139633-95-7P 139633-96-8P 139633-97-9P
139633-98-0P 139633-99-1P 139634-00-7P 139634-01-8P 139655-48-4P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)
- IT 32364-41-3P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn., reaction with acetate, and substitution reactions of)
- IT 127-08-2, Potassium acetate
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with (tosyloxy)ethenylcyclopropane)
- IT 76189-56-5, (S)-(-)-BINAP
RL: RCT (Reactant); RACT (Reactant or reagent)
(substitution reaction of allylcyclopropyl tosylate with malonate in
presence of)
- IT 38387-33-6
RL: RCT (Reactant); RACT (Reactant or reagent)
(substitution reaction of, of palladium catalyst for)
- IT 24509-88-4 83662-45-7 130715-11-6 130715-12-7 139633-91-3
RL: RCT (Reactant); RACT (Reactant or reagent)
(substitution reaction of, palladium catalyst for)
- IT 765-69-5 1074-82-4, Potassium phthalimide 42930-39-2, Butylzinc
chloride 52755-31-4 60729-65-9 63336-41-4 107201-05-8
139634-02-9 139634-04-1
RL: RCT (Reactant); RACT (Reactant or reagent)
(substitution reaction of, with alkenylcyclopropyl ester)
- IT 5158-46-3, Methyl zinc **chloride**
RL: RCT (Reactant); RACT (Reactant or reagent)
(substitution reaction of, with alkynyl cyclopropyl **chloride**)
- IT 1191-16-8, 3,3-Dimethylallyl acetate

RL: RCT (Reactant); RACT (Reactant or reagent)
(substitution reactions of, of palladium catalysts for)

IT 996-82-7, Sodium diethyl malonate 18424-76-5, Sodium **dimethyl** malonate

RL: RCT (Reactant); RACT (Reactant or reagent)
(substitution reactions of, with alkenylcyclopropyl and cyclopropylidene Et esters)

IT 28557-00-8, Phenylzinc **chloride**

RL: RCT (Reactant); RACT (Reactant or reagent)
(substitution reactions of, with alkenylcyclopropyl ester of alkynylcyclopropyl **chloride**)

IT 81834-42-6

RL: RCT (Reactant); RACT (Reactant or reagent)
(tosylation of)

L3 ANSWER 10 OF 10 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text	Citing References
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AN 1988:562253 CAPLUS

DN 109:162253

ED Entered STN: 28 Oct 1988

TI **Transition metal** complexes of substituted 2,2'-biquinolines. Part 1.
The crystal and molecular structures of [8,8'-bis(aminomethyl)-2,2'-biquinoline]chlorocopper(II) **chloride**

AU Chung, Lap Yan; Constable, Edwin C.; Lewis, Jack; Raithby, Paul R.; Kaye, Perry T.

CS Univ. Chem. Lab., Cambridge, CB2 1EW, UK

SO Journal of the Chemical Society, Dalton Transactions: Inorganic Chemistry (1972-1999) (1988), (8), 2121-5
CODEN: JCOTBI; ISSN: 0300-9246

DT Journal

LA English

CC 78-7 (Inorganic Chemicals and Reactions)
Section cross-reference(s): 75

AB 8,8'-Bis(aminomethyl)-2,2'-biquinoline (L) was prepd. in 41% overall yield from 8,8'-**dimethyl**-2,2'-biquinoline by conversion to the 8,8'-bis(bromomethyl) deriv. with N-bromosuccinimide, followed by reaction with NaN₃ and redn. with LiAlH₄. [Cu(L)Cl]Cl and [Mn(L)Cl₂] were prepd. and structurally characterized. by x-ray crystallog. The Cu is in a distorted 5-coordinate square-based pyramidal environment in [Cu(L)Cl]Cl with the coordinated Cl occupying the axial site; in contrast, Mn complex exhibits a distorted octahedral geometry about the metal.

ST crystal structure copper manganese aminomethylbiquinoline; structure copper manganese aminomethylbiquinoline complex; quinoline aminomethylbi **transition metal** complex; **transition metal** aminomethylbiquinoline complex; nickel aminomethylbiquinoline complex; zinc aminomethylbiquinoline complex; cobalt aminomethylbiquinoline complex

IT Crystal structure

Molecular structure

(of copper and manganese aminomethylbiquinoline complexes)

IT **Transition metals**, compounds

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(aminomethylbiquinoline complexes, prepn. and crystal structures of)

IT 116886-89-6P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and ESR of).

IT 116886-84-1P 116886-85-2P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and crystal structure of)

IT 116894-18-9P, 8,8'-Bis(azidomethyl)-2,2'-biquinoline

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)
(prepn. and redn. of)

IT 110589-45-2P

RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. from dimethylbiquinoline and bromosuccinimide and
benzoylperoxide and reaction of, with sodium azide)

IT 116886-83-0P 116886-87-4P 116886-91-0P 116907-08-5P 116914-64-8P,
[2,2'-Biquinoline]-8,8'-dimethanamine

RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)

IT 1160-86-7, 8,8'-**Dimethyl**-2,2'-biquinoline

RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with bromosuccinimide and benzoylperoxide)

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FILE 'CAPLUS' ENTERED AT 08:37:39 ON 31 OCT 2005

L1 11392 S AZIDE AND (HALIDE OR FLUORIDE OR BROMIDE OR CHLORIDE OR IODID)
L2 162 S L1 AND TRANSITION METAL
L3 10 S L2 AND DIMETHYL

FILE 'STNGUIDE' ENTERED AT 08:39:44 ON 31 OCT 2005

FILE 'CAPLUS' ENTERED AT 08:42:27 ON 31 OCT 2005

=> s l1 and propellant

20214 PROPELLANT

20173 PROPELLANTS

25310 PROPELLANT

(PROPELLANT OR PROPELLANTS)

L4 69 L1 AND PROPELLANT

=> d 14 1-69 ti

L4 ANSWER 1 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI Model and pilot plant process design for glycidyl azide polymer (GAP)

L4 ANSWER 2 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI Methods and compositions for increasing the efficacy of
biologically-active ingredients such as antitumor agents

L4 ANSWER 3 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI A novel method for extraction and analysis of gunpowder residues on
double-side adhesive coated stubs

L4 ANSWER 4 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI High energy binders: Glycidyl azide and allyl azide polymer

L4 ANSWER 5 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI Synthesis and properties of 1,7-diazido-2,4,6-trinitrazaheptane

L4 ANSWER 6 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI High-energy propellant with reduced hydrogen chloride pollution
containing ammonium dinitramide oxidizer and energetic binders and

plasticizers

L4 ANSWER 7 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI Polymeric binders for gas-generating compositions for inflation of vehicle airbags

L4 ANSWER 8 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI Preparation of 5,5'-bi-1H-tetrazole diammonium salts from hydrazine hydrate and dicyan useful as gas generating agents for airbags

L4 ANSWER 9 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI Synthesis of acyloxy- and **azide**-terminated polyglycidyl **azide** as energetic plasticizer for **propellants** and pyrotechnics

L4 ANSWER 10 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI Ozone degradation study of novel chain extended energetic polymers containing carbon-carbon double bonds

L4 ANSWER 11 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI Two-step method for manufacture of 5,5'-bi-(1H-tetrazole) diammonium salt as inflating composition for vehicle airbags

L4 ANSWER 12 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI Clean synthesis of energetic materials using solid-supported reactions and related technologies

L4 ANSWER 13 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI High-nitrogen transition metal nitro or nitrito complexes in non-**azide** **propellants** for inflation of vehicle airbags

L4 ANSWER 14 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI Airbag inflators for use with gas generating compositions containing guanidines

L4 ANSWER 15 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI Cold-burning ammonium nitrate-containing non-**azide**-based gas generating compositions for airbag inflation

L4 ANSWER 16 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI Non-**azide** gas generator composition, especially for inflation of vehicle airbags, containing ammonium **chloride** heat sink

L4 ANSWER 17 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI Acrylate- and substituted acrylate-terminated energetic polyoxyalkylenes as binders for **propellants** and explosives

L4 ANSWER 18 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI Fast neutron activation analysis of high energy materials and polymers

L4 ANSWER 19 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI Synthesis of high-molecular weight glycidyl **azide** polymer for **propellant** binders

L4 ANSWER 20 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI Process of coating boron particles and effect on characteristics of surface and combustion

L4 ANSWER 21 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI Droplet combustion, microexplosion, and sooting characteristics of several energetic liquid **propellants**

L4 ANSWER 22 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI Desensitization of energetic materials by forming amorphous compounds

L4 ANSWER 23 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI Surface coating of boron powder and its effect

L4 ANSWER 24 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI Gas-generating compositions using dicyanamide salts as fuel

L4 ANSWER 25 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI Pyrotechnic sheet material

L4 ANSWER 26 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI Burning rate characteristics of GAP/AN **propellant**

L4 ANSWER 27 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI Study on the catalytic thermal decomposition of sodium **azide** and its correlation with the burning rates of nitrogen-generating **propellants**

L4 ANSWER 28 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI Recent advances in fire extinguishing pyrotechnics

L4 ANSWER 29 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI A process for producing energetic polymers starting with hydroxy-terminated polyglycidyl nitrate

L4 ANSWER 30 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI Process and catalysts for the preparation of azidohydrocarbons.

L4 ANSWER 31 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI Combustion study of boron-based fuel-rich solid **propellant**

L4 ANSWER 32 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI Bond analysis of coated boron powder

L4 ANSWER 33 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI Pyrotechnic sheet materials, their manufacture, and inflators for vehicle occupant restraint systems comprising the sheet materials

L4 ANSWER 34 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI Manufacture of **azide**-terminated azido compound for **propellants** and explosives

L4 ANSWER 35 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI GAP/AN/AP/aluminum-magnesium **propellants** for low pollution and waste cost and their application to $\Phi 70$ mm motor

L4 ANSWER 36 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI Combustion behavior and thermophysical properties of metal-based solid fuels

L4 ANSWER 37 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI Burning-rate enhancement of organic diazide **propellants**. Dihalide addition and pressure elevation

L4 ANSWER 38 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI Synthesis of a diazido-terminated glycidyl **azide** polymer as plasticizer

L4 ANSWER 39 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI **Propellants** for high-energy decomposition acceleration

L4 ANSWER 40 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI Performance-oriented packaging standards; changes to classification, hazard communication, packaging and handling requirements based on UN standards and agency initiative

L4 ANSWER 41 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI 1,5-Diazido-3-nitrazapentane and its preparation

L4 ANSWER 42 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI Synthesis of polymers containing pseudohalide groups by cationic polymerization. 2. Copolymerization of 3,3-bis(azidomethyl)oxetane with substituted oxetanes containing **azide** groups

L4 ANSWER 43 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI Glycidyl **azide** polymer binder for **propellants** and its preparation

L4 ANSWER 44 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI Synthesis of novel energetic compounds. 8. Electrosynthesis of azidodinitromethyl compounds

L4 ANSWER 45 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI Hydroxyl-terminated epichlorohydrin polymers

L4 ANSWER 46 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI Aerothermochemical studies of energetic liquid materials: 3. Approximate determination of some thermophysical and thermochemical properties of organic **azides**

L4 ANSWER 47 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI N- and O-alkylations of nitro-substituted 1,3-diphenylureas: preparations of **propellant** stabilizer derivatives

L4 ANSWER 48 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Citing
References

TI Composite-modified double-base **propellants** with glycidyl **azide** polymer replacement for nitroglycerin plasticizer

L4 ANSWER 49 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

**Citing
References**

TI Gas-generating material

L4 ANSWER 50 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

**Citing
References**

TI Polyazido esters

L4 ANSWER 51 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

**Citing
References**

TI Azido derivatives of pentaerythritol

L4 ANSWER 52 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

**Citing
References**

TI Tris(2-azidoethyl)amine

L4 ANSWER 53 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

**Citing
References**

TI 3,5,5-Trinitro-3-azaheptane-1,7-diol

L4 ANSWER 54 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

**Citing
References**

TI Gas generator for automobile safety bag inflation

L4 ANSWER 55 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

**Citing
References**

TI Gas generant **propellants**

L4 ANSWER 56 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

**Citing
References**

TI Cooled gas generating solid **propellants**

L4 ANSWER 57 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

**Citing
References**

TI Coolant additives for nitrogen-generating solid **propellants**

L4 ANSWER 58 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

**Citing
References**

TI **Propellant** for automobile safety bag

L4 ANSWER 59 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

**Citing
References**

TI Reduction of toxicity of **propellant** gas

L4 ANSWER 60 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

**Citing
References**

TI Monofunctional diferrocenyl compounds

L4 ANSWER 61 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

**Citing
References**

TI Nontoxic, noncorrosive, odorless gas generating composition

L4 ANSWER 62 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

**Citing
References**

TI Composition for inflation of safety bags in vehicles

L4 ANSWER 63 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

**Citing
References**

TI Low-temperature, nitrogen gas-generating composition

L4 ANSWER 64 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

**Citing
References**

TI Alkali metal borazides for addition to **propellants**

L4 ANSWER 65 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

**Citing
References**

TI Nitroaza diisocyanates

L4 ANSWER 66 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

**Citing
References**

TI Polynitro compounds

L4 ANSWER 67 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

**Citing
References**

TI 3,3,5,5,7,7-Hexanitro-1,9-nonane diisocyanate

L4 ANSWER 68 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

**Citing
References**

TI Combustion of explosives

L4 ANSWER 69 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

**Citing
References**

TI Combustion of explosives

=> d 14 14 26 28 37 39 46 49 54 55 56 57 59 61 62 63 68 69 all

L4 ANSWER 14 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text	Citing References
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AN	2000:98440 CAPLUS
DN	132:139455
ED	Entered STN: 11 Feb 2000
TI	Airbag inflators for use with gas generating compositions containing guanidines
IN	Cabrera, Raul; Cezary, Grzelczyk
PA	Breed Automotive Technology, Inc., USA
SO	PCT Int. Appl., 26 pp. CODEN: PIXXD2
DT	Patent
LA	English

IC ICM B60R021-26
ICS C06B031-12
CC 50-1 (Propellants and Explosives)
Section cross-reference(s): 47, 59

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	<u>WO 2000006427</u>	A1	20000210	<u>WO 1999-US14943</u>	19990630
	W: BR, CA, CZ, DE, GB, JP, KR, MX, PL, RU				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	<u>US 6123359</u>	A	20000926	<u>US 1998-122213</u>	19980725
	<u>EP 1098791</u>	A1	20010516	<u>EP 1999-938713</u>	19990630
	R: DE, ES, FR, GB, IT				
PRAI	<u>US 1998-122213</u>	A	19980725		
	<u>WO 1999-US14943</u>	W	19990630		

CLASS

	PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
	<u>WO 2000006427</u>	ICM	B60R021-26
		ICS	C06B031-12
	<u>WO 2000006427</u>	ECLA	B01D039/10; B60R021/26D2; C06D005/06
	<u>US 6123359</u>	NCL	280/741.000; 149/036.000; 149/062.000; 149/076.000
		ECLA	B01D039/10; B60R021/26D2; C06D005/06
AB	An inflator for a vehicle airbag employing non-azide gas generating compns. comprises an igniter and filter. The new filter for airbag inflators is a metal ribbon coiled within the inflator housing. The metal ribbon comprises ≥1 segment of apertures and a segment of expanded metal.		
ST	airbag inflator gas generator guanidine		
IT	Airbags (protective)		
	Gas generators		
	Igniters		
	Oxidizing agents		
	Propellants (fuels)		
	Pyrotechnic compositions		
	(airbag inflators with guanidine-contg. gas generating compns.)		
IT	Filters		
	(metal-ribbon; airbag inflators with guanidine-contg. gas generating compns.)		
IT	<u>1309-37-1</u> , Iron oxide (Fe ₂ O ₃), uses <u>11104-65-7</u> , Copper chromite		
	RL: CAT (Catalyst use); USES (Uses)		
	(airbag inflators with guanidine-contg. gas generating compns.)		
IT	<u>50-00-0</u> , Formaldehyde, formation (nonpreparative) <u>71-43-2</u> , Benzene, formation (nonpreparative) <u>74-82-8</u> , Methane, formation (nonpreparative) <u>74-90-8</u> , Hydrogen cyanide, formation (nonpreparative) <u>124-38-9</u> , Carbon dioxide, formation (nonpreparative) <u>630-08-0</u> , Carbon monoxide, formation (nonpreparative) <u>7446-09-5</u> , Sulfur dioxide, formation (nonpreparative) <u>7647-01-0</u> , Hydrogen chloride, formation (nonpreparative) <u>7664-41-7</u> , Ammonia, formation (nonpreparative) <u>10102-43-9</u> , Nitric oxide, formation (nonpreparative) <u>10102-44-0</u> , Nitrogen dioxide, formation (nonpreparative)		
	RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)		
	(airbag inflators with guanidine-contg. gas generating compns.)		
IT	<u>506-93-4</u> , Guanidine nitrate <u>556-88-7</u> , Nitroguanidine <u>4000-16-2</u> , Triaminoguanidine nitrate <u>7631-99-4</u> , Sodium nitrate, uses <u>7697-37-2D</u> , Nitric acid, alkali metal/alk. earth salts, uses <u>7757-79-1</u> , Potassium nitrate, uses <u>7790-98-9</u> , Ammonium perchlorate <u>10042-76-9</u> , Strontium nitrate <u>10308-82-4</u> <u>37160-07-9</u> , Diaminoguanidine nitrate <u>71816-39-2</u> , Boron nitrate (B(NO ₃) ₃)		

RL: TEM (Technical or engineered material use); USES (Uses)
(airbag inflators with guanidine-contg. gas generating compns.)

IT 7732-18-5, Water, formation (nonpreparative)

RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(vapor; airbag inflators with guanidine-contg. gas generating compns.)

RE.CNT 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Adamini; US 5806888 A 1998
- (2) Allard; US 5104466 A 1992 CAPLUS
- (3) Armstrong; US 5551724 A 1996
- (4) Canterberry; US 5765866 A 1998
- (5) Cunningham; US 5443286 A 1995
- (6) Faigle; US 5609360 A 1997
- (7) Fulmer; US 5503806 A 1996 CAPLUS
- (8) Hock; US 5665131 A 1997
- (9) Knowlton; US 5739460 A 1998
- (10) Lenzen; US 4858951 A 1989
- (11) Lundstrom; US 5756929 A 1998 CAPLUS
- (12) Plantif; US 3958949 A 1976 CAPLUS
- (13) Scheffee; US 5861571 A 1999 CAPLUS
- (14) Shiki; US 3904221 A 1975 CAPLUS
- (15) Yamato; US 5773754 A 1998 CAPLUS

L4 ANSWER 26 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text	Citing References
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AN 1995:719551 CAPLUS

DN 123:174350

ED Entered STN: 04 Aug 1995

TI Burning rate characteristics of GAP/AN **propellant**

AU Kato, Kazushige; Nakashita, Goro

CS Aichi Works, NOF Corp., Aichi, 470-23, Japan

SO Kayaku Gakkaishi (1995), 56(3), 130-4

CODEN: KAGAEA; ISSN: 1340-2781

DT Journal

LA Japanese

CC 50-1 (Propellants and Explosives)

Section cross-reference(s): 67

AB The burning rate characteristics of **propellant** generating less HCl, which contains ammonium nitrate (AN) as oxidizer and glycidyl azide polymer (GAP) as binder, was studied to modify its burning rate characteristics for practical use. The burning rate increased when a small amt. of ammonium perchlorate (AP) was added. When the wt. ratio of AP/AN is 1.0:1, the diffusion flame of AP becomes the rate detg. step at 4 MPa pressure and the pressure exponent of the burning rate decreased. When Fe₂O₃ is added to GAP/AN/AP **propellant**, the burning rate and the pressure exponent at <5 MPa pressure increased, and the pressure exponent decreased at higher pressure. This was caused by the thermal decompn. rate of AP increased by the Fe₂O₃ which worked as catalyst.

ST **propellant** burning rate GAP AN; glycidyl azide polymer **propellant** burning rate; ammonium nitrate GAP **propellant**

IT Combustion

(burning rate characteristics of glycidyl azide polymer/ammonium nitrate **propellants** in presence of ammonium perchlorate and ferric oxide)

IT Combustion catalysts

(**propellants** contg.; burning rate characteristics of glycidyl azide polymer/ammonium nitrate **propellants** in presence of ammonium perchlorate and ferric oxide)

IT **Propellants**

(solid, burning rate characteristics of glycidyl azide polymer/ammonium nitrate **propellants** in presence of ammonium perchlorate and ferric oxide)

IT 143178-24-9, Glycidyl **azide** polymer

RL: TEM (Technical or engineered material use); USES (Uses)

(binder, **propellants** contg.; burning rate characteristics of glycidyl **azide** polymer/ammonium nitrate **propellants** in presence of ammonium perchlorate and ferric oxide)

IT 7647-01-0, Hydrogen **chloride**, formation (nonpreparative)

RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)

(formation of; in combustion of glycidyl **azide** polymer/ammonium nitrate **propellants** in presence of ammonium perchlorate and ferric oxide)

IT 1309-37-1, Ferric oxide, uses

RL: CAT (Catalyst use); USES (Uses)

(**propellants** contg.; burning rate characteristics of glycidyl **azide** polymer/ammonium nitrate **propellants** in presence of ammonium perchlorate and ferric oxide)

IT 7790-98-9, Ammonium perchlorate

RL: MOA (Modifier or additive use); USES (Uses)

(**propellants** contg.; burning rate characteristics of glycidyl **azide** polymer/ammonium nitrate **propellants** in presence of ammonium perchlorate and ferric oxide)

IT 6484-52-2, Ammonium nitrate, uses

RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(**propellants** contg.; burning rate characteristics of glycidyl **azide** polymer/ammonium nitrate **propellants** in presence of ammonium perchlorate and ferric oxide)

L4 ANSWER 28 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text	Citing References
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AN 1995:202130 CAPLUS

DN 122:85000

ED Entered STN: 19 Nov 1994

TI Recent advances in fire extinguishing pyrotechnics

AU Reed, R.; Brady, V. L.; Hitner, J. M.

CS Naval Air Warfare Center Weapons Division, China Lake, CA, 93555-6001, USA

SO Proceedings of the International Pyrotechnics Seminar (1994), 20TH, 815-28

CODEN: PPYSD7; ISSN: 0270-1898

DT Journal

LA English

CC 50-3 (Propellants and Explosives)

AB Compns. which undergo flameless deflagration to produce N₂ and HBr were prepd. which contain an azido binder, solid tetrazoles, and aryl **bromides**. Decompn. of azido and tetrazolyl moieties release sufficient heat to provide the thermochem. driving force for deflagration. Calcns. indicated that the **bromide** is converted into HBr. A formulation contg. 50% decabromodiphenyl ether and 50% binder and tetrazole deflagrates to produce a gaseous mixt. contg. 42 wt.% HBr. Gas compns. at 14.7, 100, 500, and 1000 psi were calcd. using an enthalpy point technique assuming const. entropy. A typical compn. burning at a chamber pressure of 1000 psi and expanded to 14.7 psi has a calcd. exit temp. of 922°K. If the gases were passed through a bed contg. metallic salts of perfluorooctanoic acid, the gases would be cooled, and these salts would decomp. endothermically at relatively low temps. (250°) to yield a denser gas composed of perfluoroheptene and CO₂. These calcns. assume that the thermodyn. most stable products were formed. Since there is no flame, it is unlikely that the reactions forming these products have gone

to completion. A typical compn. contains the glycidyl **azide** polymer (GAP) as an elastomeric binder (42% N) and the solid fillers ammonium-5-nitraminotetrazole (57% N) and decabromodiphenyl ether (83% Br). Other binders investigated included azido and nitrate polyoxetanes. Plasticizers such as the azido-terminated oligomer of GAP (54% N) were also used to increase the nitrogen content of the binder. The homopolymer of BAMO (3,3-bis[azidomethyl]oxetane) (50% N) was evaluated.

- ST flameless deflagration pyrotechnic fire extinguisher; hydrogen **bromide** fire extinguisher pyrotechnic; perfluorheptene fire extinguisher pyrotechnic; carbon dioxide fire extinguisher pyrotechnic
- IT Gas generators
(flameless deflagration of pyrotechnic gas-generating compns. as fire extinguishers)
- IT Combustion
(deflagration, flameless; flameless deflagration of pyrotechnic gas-generating compns. as fire extinguishers)
- IT Fire
(extinguishers, flameless deflagration of pyrotechnic gas-generating compns. as fire extinguishers)
- IT 59595-53-8 94901-15-2 121150-74-1 143178-24-9, Glycidyl **azide** polymer
RL: TEM (Technical or engineered material use); USES (Uses)
(binder, gas generator compns. contg.; flameless deflagration of pyrotechnic gas-generating compns. as fire extinguishers)
- IT 1163-19-5, Decabromodiphenyl ether 32534-81-9, Pentabromodiphenyl ether 160612-50-0, DE 62
RL: TEM (Technical or engineered material use); USES (Uses)
(**bromide** source, gas-generator compn. contg.; flameless deflagration of pyrotechnic gas-generating compns. as fire extinguishers)
- IT 124-38-9, Carbon dioxide, formation (nonpreparative) 355-63-5, 1-Perfluoroheptene 7726-95-6, Bromine, formation (nonpreparative) 7727-37-9, Nitrogen, formation (nonpreparative) 10035-10-6, Hydrogen **bromide**, formation (nonpreparative)
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(formation; flameless deflagration of pyrotechnic gas-generating compns. as fire extinguishers)
- IT 335-67-1D, metal salts 335-95-5, Sodium perfluorooctanoate 603-33-8, Triphenylbismuth 12029-98-0, Iodine oxide (I2O5) 13446-09-8, Ammonium iodate (NH4IO3) 90430-60-7, Calcium perfluorooctanoate
RL: RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)
(gas-generator compns. contg.; flameless deflagration of pyrotechnic gas-generating compns. as fire extinguishers)
- IT 57877-65-3 160545-45-9
RL: TEM (Technical or engineered material use); USES (Uses)
(**propellant**, gas-generator compns. contg.; flameless deflagration of pyrotechnic gas-generating compns. as fire extinguishers)

L4 ANSWER 37 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text	Citing References
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AN 1992:553975 CAPLUS

DN 117:153975

ED Entered STN: 17 Oct 1992

TI Burning-rate enhancement of organic diazide **propellants**. Dihalide addition and pressure elevation

AU Lee, A.; Jiang, Y. J.; Zhu, D. L.; Law, C. K.

CS Princeton Univ., Princeton, NJ, 08544, USA

SO AIAA Journal (1992), 30(5), 1298-303
 CODEN: AIAJAH; ISSN: 0001-1452

DT Journal

LA English

CC 50-1 (Propellants and Explosives)

AB Enhanced droplet combustion of diazidoalkane **propellants** was obsd. at elevated pressures in the presence of 5-10 vol.% α,ω -dihaloalkane additives, which primarily promoted droplet microexplosion and greatly reduced droplet lifetime. Although the results were compn. dependent, similar results were not obtained for twice as much monohalide or monoazide; the results were obsd. for all dihalides investigated, regardless of their volatilities or choice of halogens. Droplet vaporization expts. performed under nonoxidizing conditions at elevated pressures showed that the microexplosion state was minimally affected but the gasification rate was significantly enhanced. This enhanced rate was, as for oxidizing conditions, not obsd. for monoazides or hydrocarbons of equal volatility. The mechanism of enhanced combustion was not identified.

ST azidoalkane **propellant** combustion enhancement; **halide** alkylene azidoalkane combustion additive; alkyl dihalide azidoalkane combustion additive; droplet microexplosion azidoalkane **propellant** combustion

IT Combustion
 (of α,ω -diazidoalkane **propellants**,
 α,ω -dihaloalkane promoters for, for enhanced droplet microexplosions)

IT **Propellants**
 (α,ω -diazidoalkanes, combustion of, α,ω -dihaloalkane promoters for, for enhanced droplet microexplosions)

IT **Azides**
 RL: USES (Uses)
 (bis-, alkylene, **propellants**, combustion of, α,ω -dihaloalkane promoters for)

IT Explosion
 (micro-, of droplets, in combustion of α,ω -diazidoalkane **propellants**, promotion of, with α,ω -dihaloalkanes)

IT Alkylene **halides**
 RL: USES (Uses)
 (α,ω -, combustion promoters, for α,ω -diazidoalkane **propellants**)

IT 7782-44-7
 RL: USES (Uses)
 (combustion, of α,ω -diazidoalkane **propellants**, α,ω -dihaloalkane promoters for, for enhanced droplet microexplosions)

IT 109-64-8, 1,3-Dibromopropane 110-56-5, 1,4-Dichlorobutane 111-24-0,
 1,5-Dibromopentane 627-31-6, 1,3-Diiodopropane 629-09-4,
 1,6-Diiodohexane 821-76-1 2162-98-3, 1,10-Dichlorodecane 4549-32-0,
 1,8-Dibromooctane
 RL: USES (Uses)
 (promoter, for droplet microexplosions, in enhanced combustion of α,ω -diazidoalkane **propellants**)

IT 24345-72-0
 RL: USES (Uses)
 (**propellant**, combustion of, droplet microexplosion enhanced in, with α,ω -dihaloalkanes)

IT 17607-21-5, 1,5-Diazidopentane
 RL: USES (Uses)
 (**propellant**, combustion of, droplet microexplosion

enhancement in, with α,ω -dihaloalkanes)

L4 ANSWER 39 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text	Citing References
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AN 1992:197222 CAPLUS

DN 116:197222

ED Entered STN: 16 May 1992

TI **Propellants** for high-energy decomposition acceleration

IN Mitarai, Yoshiaki

PA Asahi Chemical Industry Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 4 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM C06D005-00

ICS C06D005-04; C06D005-10

CC 50-1 (Propellants and Explosives)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 03295888	A2	19911226	JP 1990-94162	19900411
PRAI	JP 1990-94162		19900411		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 03295888	ICM	C06D005-00
	ICS	C06D005-04; C06D005-10

AB In solid **propellants** contg. aliph. polyether binders having **azide** side chains, the water content in the binder is controlled to 0.01-18%. **Azide** groups are completely decompd. in the **propellants**.

ST **azide** decompn **propellant** water content

IT **Propellants**

(solid, contg. **azide** side-chained binder, water content control in)

IT 7732-18-5, Water, miscellaneous

RL: MSC (Miscellaneous)

(content control of, in **propellants** contg. **azide** side-chained binders, for higher energy)

IT 140895-69-8P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(prepn. and reaction of, with sodium **azide**, **propellants** from, water content control in)

IT 104493-28-9P

RL: PREP (Preparation)

(**propellant**, prepn. of, water content control in)

IT 98-59-9, p-Toluenesulfonic acid **chloride**

RL: RCT (Reactant); RACT (Reactant or reagent)

(reaction of, with hydroxymethyl(methyl)oxetane, **propellants** from, water content control in)

IT 26628-22-8, Sodium **azide**

RL: RCT (Reactant); RACT (Reactant or reagent)

(reaction of, with methyltoluenesulfonic acid methyloxetane, **propellants** from, water content control in)

IT 3143-02-0, 3-Hydroxymethyl-3-methyloxetane

RL: RCT (Reactant); RACT (Reactant or reagent)

(reaction of, with toluenesulfonic acid **chloride**, **propellants** from, water content control in)

L4 ANSWER 46 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text	Citing References
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AN 1990:142320 CAPLUS
 DN 112:142320
 ED Entered STN: 13 Apr 1990
 TI Aerothermochemical studies of energetic liquid materials: 3. Approximate determination of some thermophysical and thermochemical properties of organic **azides**
 AU Lee, A.; Law, C. K.; Makino, A.
 CS Dep. Mech. Eng., Univ. California, Davis, CA, 95616, USA
 SO Combustion and Flame (1989), 78(3-4), 263-74
 CODEN: CBFMAO; ISSN: 0010-2180
 DT Journal
 LA English
 CC 50-2 (Propellants and Explosives)
 Section cross-reference(s): 51, 69
 AB Through either direct measurement or group additivity calcn., the densities, normal b.ps., latent heats of vaporization, limits of superheat, enthalpies of formation, combustion, and decompn., and adiabatic flame temps. are approx. detd. for the mono- and di-substituted alkyl **azides**, which have enhanced droplet gasification rates and microexplosion events. Similar detns. are done for some alkyl **halides**, esp. alkyl **bromides**; the similarity of their properties to those of the org. **azides** are noted. Implications of the thermophys. and thermochem. properties for the potential of the **azides** and **halides** as jet fuels and jet-fuel additives are discussed.
 ST energetic alkyl **azide halide**; combustion alkyl **azide halide**; explosion alkyl **azide halide**; thermochem alkyl **azide halide**
 IT Fuels, jet aircraft
 (alkyl **azides** and **halides** in, thermochem. properties in relation to)
 IT Alkyl **azides**
 RL: USES (Uses)
 (energetic materials, thermochem. properties of)
 IT **Propellants**
 (org. **azides** and **halides**, thermochem. properties of)
 IT Alkyl **bromides**
 Alkyl **halides**
 RL: USES (Uses)
 (thermochem. properties of, as fuels)

L4 ANSWER 49 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text	Citing References
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AN 1987:639342 CAPLUS
 DN 107:239342
 ED Entered STN: 25 Dec 1987
 TI Gas-generating material
 IN Goetz, George W.; Hamilton, Brian K.
 PA TRW Automotive Products, Inc., USA
 SO U.S., 7 pp.
 CODEN: USXXAM
 DT Patent
 LA English
 IC ICM C06B045-34
 INCL 149007000
 CC 50-1 (Propellants and Explosives)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4698107	A	19871006	US 1986-946705	19861224
	DE 3727822	A1	19880707	DE 1987-3727822	19870820
	DE 3727822	C2	19890223		
	CA 1286112	A1	19910716	CA 1987-545722	19870831
	JP 63171635	A2	19880715	JP 1987-230863	19870914
	JP 04055735	B4	19920904		
PRAI	US 1986-946705	A	19861224		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 4698107	ICM	C06B045-34
	INCL	149007000
US 4698107	NCL	149/007.000; 102/286.000; 102/531.000; 149/019.300; 149/035.000; 149/041.000; 149/061.000; 280/728.100; 280/741.000

AB Gas-generating structures for inflating vehicle air bags comprise a grain of **azide**-based material which generates gas upon combustion, 1-6 wt.% graphite fibers 3-15 μ in diam. and 0.04-0.125 in. long, and, on the grain, an ignition-enhancing coating comprising a alkali metal **azide**, i.e., NaN_3 , 20-50, an inorg. oxidizer, i.e., NaNO_3 , 25-35, a fluoroelastomer binder 10-15, Mg 15-25, and fumed SiO_2 1-3 wt.%. The grain in the structure consists primarily of NaN_3 and Fe oxide and has passages extending axially through the grain and intersecting the opposite axial ends. The graphite fibers increase the burn rate of the grains by 40% compared to those without the fibers and at decreased temps. Actuation of the squib ignites all surfaces nearly simultaneously and the coating ingredients insure its reliable ignition while combustion of the ingredients provides the heat transfer to ignite the grains. The coating controls the heat generation at the grain-filter interface and prevents filter damage by overheating. The coating does not burn so fast as to build up pressure in the grain passages which leads to grain breaking or cracking.

ST **azide propellant** coating air bag; sodium **azide** coating **propellant**; sodium nitrate coating **propellant**; silica fume coating **propellant**

IT Gas generators
(for automotive air bags, **azide propellant** grains
for, coating with **azide**-oxidizer compns. for increased burn
rate)

IT Bentonite, uses and miscellaneous
RL: USES (Uses)
(in sodium **azide propellant** grains, coated with
azide-oxidizer compns., for air bag inflation)

IT **Azides**
RL: USES (Uses)
(**propellant** grains, coating with **azide**-oxidizer
compns. for rapid burn rate for air bag inflation)

IT Coating materials
(sodium **azide** and sodium nitrate, on **azide**
propellant grains for air bag inflation)

IT Safety devices
(airbags, automotive, **azide propellant** grains for,
coating with **azide**-oxidizer compns. for increased burn rate)

IT **Propellants**
(gas-generating, for air bag inflation, coating of **azide**,
with **azide**-oxidizer compns., for increased burn rate)

IT Carbon fibers, uses and miscellaneous
RL: USES (Uses)
(graphite, in **azide propellant** grains, for air bag

inflation, for high burn rate)

IT Rubber, synthetic
RL: USES (Uses)
(hexafluoropropene-vinylidene fluoride, binders, in
azide-oxidizer coatings on azide propellants
for air bag inflation)

IT 7440-44-0 7782-42-5
RL: USES (Uses)
(carbon fibers, graphite, in **azide propellant**
grains, for air bag inflation, for high burn rate)

IT 7631-86-9, uses and miscellaneous
RL: USES (Uses)
(colloidal, in **azide-oxidizer coatings on azide**
propellant grains for air bag inflation)

IT 7439-95-4, Magnesium, uses and miscellaneous
RL: USES (Uses)
(in **azide-oxidizer coatings**, for **azide**
propellant grains for air bag inflation)

IT 1332-37-2, uses and miscellaneous
RL: USES (Uses)
(in sodium **azide propellant** grains, coated with
azide-oxidizer compns., for air bag inflation)

IT 7631-99-4, uses and miscellaneous 26628-22-8, Sodium **azide**
RL: USES (Uses)
(**propellant** grains contg., and coatings therefor, for air bag
inflation)

L4 ANSWER 54 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text	Citing References
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AN 1983:146067 CAPLUS
DN 98:146067
ED Entered STN: 12 May 1984
TI Gas generator for automobile safety bag inflation
PA Nippon Oils & Fats Co., Ltd., Japan; Nissan Motor Co., Ltd.
SO Jpn. Tokkyo Koho, 3 pp.
CODEN: JAXXAD
DT Patent
LA Japanese
IC C06D005-06
ICA A62B035-00
CC 50-1 (Propellants and Explosives)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	<u>JP 57042598</u>	B4	19820909	<u>JP 1974-61505</u>	19740531
PRAI	<u>JP 1974-61505</u>		19740531		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
<u>JP 57042598</u>	IC	C06D005-06
	ICA	A62B035-00

AB Al₂O₃, MgO, or SiO₂ is coated with an inorg. salt (e.g., MgCl₂, NH₄Cl) and used for cooling and removal of harmful materials in a gas generator for automobile safety bag inflation. Thus, a 75:25 NaN₃-KClO₄ mixt. was put into a **propellant** chamber in a 2-chamber cylindrical vessel, while MgCl₂-coated Al₂O₃ (300-2000 μ) was charged into another chamber. When the **propellant** was ignited, a hot gas together with harmful Na₂O at ~2000° was produced. The gas was cooled, and the Na₂O was also converted to NaCl by the MgCl₂-coated Al₂O₃.

- ST alumina coolant **propellant** gas generator; safety air bag **propellant** automobile
- IT Safety devices
(air bags, **propellants** for automotive, contg. magnesium **chloride**-coated alumina for cooling and sodium oxide conversion)
- IT Cooling agents
(alumina, magnesium **chloride**-coated, for **azide**-perchlorate air bag **propellants**)
- IT Gases
(generation of, for automobile air bag inflation, magnesium **chloride**-coated alumina in, for cooling and sodium oxide conversion)
- IT **Propellants**
(sodium **azide**, contg. potassium perchlorate, for automobile air bag inflation, with magnesium **chloride**-coated alumina for cooling and sodium oxide conversion)
- IT 7786-30-3, uses and miscellaneous
RL: USES (Uses)
(alumina coated with, in **azide**-perchlorate air bag **propellant**, for cooling and sodium oxide conversion)
- IT 1313-59-3, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(conversion of, in gas-generating **propellants** for automobile air bags, by magnesium **chloride**-coated alumina)
- IT 1344-28-1, uses and miscellaneous
RL: USES (Uses)
(magnesium **chloride**-coated, in **azide**-perchlorate automobile air bag **propellants** for cooling and sodium oxide conversion)
- IT 26628-22-8
RL: USES (Uses)
(**propellants**, for automotive air bag inflation, contg. magnesium **chloride**-coated alumina for cooling and sodium oxide conversion)
- IT 7778-74-7
RL: USES (Uses)
(**propellants**, sodium **azide**, for automotive air bag inflation, with magnesium **chloride**-coated alumina for cooling and sodium oxide conversion)

L4 ANSWER 55 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text	Citing References
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AN 1981:483094 CAPLUS

DN 95:83094

ED Entered STN: 12 May 1984

TI Gas generant **propellants**

IN Reed, Russell, Jr.; Lee, Benjamin Y. S.; Henry, Ronald A.

PA USA

SO U. S. Pat. Appl., 14 pp. Avail. NTIS Order No. PAT-APPL-196 893.
CODEN: XAXXAV

DT Patent

LA English

CC 49-1 (Industrial Inorganic Chemicals)
Section cross-reference(s): 28

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 196893	A0	19810508	US 1980-196893	19801014

US 4358327 A 19821109
 PRAI US 1980-196893 19801014
 CLASS

PATENT NO. CLASS PATENT FAMILY CLASSIFICATION CODES

US 196893 NCL 149/019.400; 149/019.600; 149/088.000; 149/092.000

AB A gas-generating compn. is prepd. whose flame temp. is sufficiently low (1000-1400°F) for using it to inflate rubber and plastic devices. The gas generated is N₂. An uncured binder compn. of a polyethylene glycol capped polypropylene glycol and a dihydroxytetrazole is prepd. The biuret trimer of hexamethylene diisocyanate is added as a curative agent. A plasticizer, coolant, and a deflagrating agent are added. Thus, bis(hydroxyethyl)tetrazole, a polyethylene-polypropylene glycol, hexamethylene diisocyanate biuret trimer, 1-methyl-5-(methoxyethyl)-1H-tetrazole, ammonium salt of 5-nitraminotetrazole, and oxamide were compounded for making a compn. that had a flame temp. of 1384 and 694K in the chamber and exhaust. Without oxamide the resp. temps. were 1794 and 1002 K.

ST nitrogen generating **propellant**; hydroxytetrazole **propellant** nitrogen generation; tetrazole **propellant** nitrogen generation

IT 9003-11-6
 RL: USES (Uses)
 (binder, for nitrogen-generating compn.)

IT 471-46-5
 RL: USES (Uses)
 (coolant, in nitrogen-generating compn.)

IT 4035-89-6
 RL: USES (Uses)
 (curing agent, for nitrogen-generating compn.)

IT 57877-65-3 78697-36-6
 RL: USES (Uses)
 (deflagrating agent, for nitrogen-generating compn.)

IT 7727-37-9P, preparation
 RL: PREP (Preparation)
 (generation of, compn. for)

IT 78697-39-9
 RL: MOA (Modifier or additive use); USES (Uses)
 (plasticizer, for nitrogen-generating compn.)

IT 66012-50-8P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (prepn. and hydroxyethylation of)

IT 78697-37-7P 78697-38-8P
 RL: PREP (Preparation)
 (prepn. and use in nitrogen-generating compn.)

IT 78723-01-0P
 RL: PREP (Preparation)
 (prepn. of and use for nitrogen-generating compn.)

IT 26628-22-8
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reaction of, with ammonium **chloride** and bis-(cyanoethyl)ether)

IT 1656-48-0
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reaction of, with ammonium **chloride** and sodium **azide**)

IT 12125-02-9, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reaction of, with bis-(cyanoethyl)ether and sodium **azide**)

IT 17587-08-5

RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with chloroethanol)

IT 107-07-3, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with tetrazoles)

L4 ANSWER 56 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text	Citing References
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AN 1978:25117 CAPLUS

DN 88:25117

ED Entered STN: 12 May 1984

TI Cooled gas generating solid **propellants**

IN MacSenzie, Gerald L.

PA United States Dept. of the Navy, USA

SO U. S. Pat. Appl., 13 pp. Avail. NTIS.

CODEN: XAXXAV

DT Patent

LA English

CC 50-2 (Propellants and Explosives)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	<u>US 3977924</u>	A	19760831	<u>US 1974-456703</u>	19740401
	<u>US 456703</u>	A0	19740401		
PRAI	<u>US 1974-456703</u>	A	19740401		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
<u>US 3977924</u>	NCL	149/019.300; 149/035.000; 149/042.000; 149/082.000; 149/083.000

AB **Azide-based propellants** for generating cool gases are prepd. from NaN₃, a fluorocarbon polymer matrix, SiO₂ combustion catalyst, and NaHCO₃ or Na₂C₂O₄ [62-76-0] as coolant. Thus, **propellants** contg. NaN₃ 58 (58), SiO₂ 3 (2), Viton A 30 (30), Na₂C₂O₄ 10 (0), and NaHCO₃ 0 (10%) had theor. flame (chamber) temp. 2316 (1096) and exhaust temp. 1068 (356°F), compared to 2900 (2200°F) for a control contg. 68% NaN₃ and no coolant.

ST **propellant** coolant sodium salt; bicarbonate sodium **propellant** coolant; oxalate sodium **propellant** coolant

IT Gases

(generation of, sodium **azide propellants** for, with sodium salt coolants)

IT Cooling agents

(sodium salts, for sodium **azide-based gas-generating propellants**)

IT **Propellants**

(gas-generating, sodium **azide-based**, sodium salt coolants for)

IT Rubber, synthetic

RL: USES (Uses)

(hexafluoropropene-vinylidene **fluoride**, matrix, for sodium **azide-based gas-generating propellants** with sodium salt coolants)

IT 62-76-0 144-55-8, uses and miscellaneous

RL: USES (Uses)

(cooling agents, for sodium **azide-based gas-generating propellants**)

IT 9011-17-0

RL: USES (Uses)

(rubber, matrix for sodium **azide**-based gas-generating
propellants with sodium salt coolants)

L4 ANSWER 57 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text	Citing References
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AN 1976:579852 CAPLUS
DN 85:179852
ED Entered STN: 12 May 1984
TI Coolant additives for nitrogen-generating solid **propellants**
IN McCulloch, Charles R.; MacKenzie, Gerald L.
PA United States Dept. of the Navy, USA
SO U.S., 4 pp.
CODEN: USXXAM
DT Patent
LA English
IC C06B045-10
INCL 149019300
CC 50-2 (Propellants and Explosives)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI US 3977924		19760831	US 1974-456703	19740401

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
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US 3977924	IC	C06B045-10
	INCL	149019300
US 3977924	NCL	149/019.300; 149/035.000; 149/042.000; 149/082.000; 149/083.000

AB **Propellants** generating cooled N gas for safety device inflation are
prepd. from **azides** and alkali metal acid salt coolants in a polymeric
propellant matrix. The coolant decreases the flame temp., maintains the
desired level of gases, and reacts with F to render it inert. Thus, a
compn. contg. NaN₃ 58, SiO₂ 2, NaHCO₃ 10, and Viton A 30%, on combustion,
has chamber and exhaust temps. of 1096 and 356°F, resp., whereas a
similar compn. with 68% NaN₃ and no NaHCO₃ shows 2900 and 2200°F,
resp.

ST nitrogen **propellant** carbonate coolant

IT Rubber, synthetic
(hexafluoropropene-vinylidene **fluoride**, **propellants**
contg. **azides** and bicarbonate coolants, for safety device
inflation)

IT Safety devices
(inflation of, **azide** nitrogen-generating **propellants**
contg. bicarbonate coolants for)

IT **Propellants**
(nitrogen-generating, contg. sodium bicarbonate coolant, for safety
device inflation)

IT 144-55-8, uses and miscellaneous

RL: USES (Uses)

(cooling agents, for **azide propellants** for nitrogen
generation for safety device inflation)

IT 7727-37-9P, preparation

RL: PREP (Preparation)

(generation of, for safety device inflation, **azide**
propellants contg. bicarbonate coolants for)

IT 9011-17-0

RL: USES (Uses)

(rubber, **propellants** contg. **azides** and bicarbonate

coolants, for safety device inflation)

L4 ANSWER 59 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text	Citing References
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AN 1976:107998 CAPLUS
 DN 84:107998
 ED Entered STN: 12 May 1984
 TI Reduction of toxicity of **propellant** gas
 IN Kasama, Tsuneo; Shimizu, Haruaki; Fujiyama, Hikaru; Nagaoka, Tadahiko
 PA Nippon Oils & Fats Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 4 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC B01J; B01D
 CC 50-2 (Propellants and Explosives)
 FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 50075966	A2	19750621	JP 1973-123699	19731102
JP 1973-123699	A	19731102		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 50075966	IC	B01JIC B01D
AB		B or Si, H3BO3, SiO2, MgCl2 [7786-30-3], C2Cl6, PVC, and(or) NH4ClO4 are used to reduce the toxicity of gas generated from NaN3 [26628-22-8]-KClO4 [7778-74-7] mixts. for air bags. Thus, when gas generated from a compn. of 100 parts of 75:25 NaN3-KClO4 and 40 parts MgCl2 was bubbled through water, the water had pH 7, compared with 11 for a similar test without MgCl2.
ST		air bag gas treatment; sodium azide combustion gas; toxicity reduction propellant gas
IT		Safety devices (air bags, propellants for, contg. magnesium chloride for toxic gas prevention)
IT		Poisons (gases, from air bag inflation, propellants contg. magnesium chloride for preventing)
IT		Gases (generation of, for air bag inflation, propellants contg. magnesium chloride for toxicity redn. in)
IT		Bags (inflatable air, propellants for, contg. magnesium chloride for toxic gas prevention)
IT		Propellants (potassium perchlorate-sodium azide , for air bag inflation, contg. magnesium chloride for toxic gas prevention)
IT		7786-30-3, uses and miscellaneous RL: USES (Uses) (in propellants , for toxic gas prevention in air bag inflation)
IT		7778-74-7 26628-22-8 RL: USES (Uses) (propellants , contg. magnesium chloride for toxic gas prevention in air bag inflation)

L4 ANSWER 61 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text	Citing References
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AN 1975:482290 CAPLUS
 DN 83:82290
 ED Entered STN: 12 May 1984
 TI Nontoxic, noncorrosive, odorless gas generating composition
 IN Lundstrom, Norman H.
 PA Thiokol Chemical Corp., USA
 SO U.S., 5 pp.
 CODEN: USXXAM
 DT Patent
 LA English
 IC B60R; C06D
 INCL 149035000
 CC 50-2 (Propellants and Explosives)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	<u>US 3865660</u>	A	19750211	<u>US 1973-340422</u>	19730312
PRAI	<u>US 1973-340422</u>	A	19730312		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
<u>US 3865660</u>	IC	B60RIC C06D
	INCL	149035000
<u>US 3865660</u>	NCL	149/035.000; 149/016.000; 252/183.140; 280/741.000; 422/167.000; 423/351.000; 423/410.000

AB A gas-generating compn. useful for inflating passenger-vehicle protective crash bags contains 55.18 wt. % NaN_3 [26628-22-8] and 44.82% anhyd. CrCl_3 [10025-73-7]. To this mixt. is added 9% Al_2O_3 [1344-28-1], resulting in a heat sink that lowers the temp. of the resulting N [7727-37-9] from 1007 to 639°F. LiN_3 [19597-69-4] also is used in place of NaN_3 .

ST safety bag gas generation; nitrogen generation safety bag; automobile crash bag gas generator; **azide** chromium **chloride** nitrogen generator; alumina coolant nitrogen safety bag

IT **Propellants**

(**azide**-chromium **chloride**, nitrogen-generating, for automotive safety bags)

IT Safety devices

(bags, for vehicles, nitrogen-generating compns. for inflating)

IT Bags

(inflatable safety, for vehicles, nitrogen-generating compns. for)

IT 1344-28-1, uses and miscellaneous

RL: USES (Uses)

(cooling agents, for nitrogen generated for vehicle crash bags)

IT 7727-37-9P, preparation

RL: FORM (Formation, nonpreparative); PREP (Preparation)

(formation of, from **azides** and chromium **chloride** for inflating vehicle crash bags)

IT 19597-69-4

RL: USES (Uses)

(nitrogen-generating compn. from chromium **chloride** and, for vehicle crash bags)

IT 10025-73-7

RL: USES (Uses)

(nitrogen-generating compns. from **azides** and, for vehicle safety bags)

IT 26628-22-8

RL: USES (Uses)

(nitrogen-generating compns. from chromium **chloride** and, for

vehicle safety bags)

L4 ANSWER 62 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text	Citing References
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AN 1974:61717 CAPLUS
 DN 80:61717
 ED Entered STN: 12 May 1984
 TI Composition for inflation of safety bags in vehicles
 IN Brennan, Richard L.; Lane, George A.
 PA Dow Chemical Co.
 SO Fr. Demande, 7 pp.
 CODEN: FRXXBL
 DT Patent
 LA French
 IC C06C; B60R
 CC 50-3 (Propellants and Explosives)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	<u>FR 2160411</u>	A1	19730629	<u>FR 1972-39734</u>	19721109
	<u>FR 2160411</u>	B1	19741004		
	<u>CA 981465</u>	A1	19760113	<u>CA 1972-154470</u>	19721023
	<u>NL 7215390</u>	A	19730521	<u>NL 1972-15390</u>	19721114
	<u>JP 48058267</u>	A2	19730815	<u>JP 1972-113569</u>	19721114
	<u>DE 2256254</u>	A1	19730524	<u>DE 1972-2256254</u>	19721116
	<u>ES 408648</u>	A1	19751101	<u>ES 1972-408648</u>	19721116
	<u>GB 1417022</u>	A	19751210	<u>GB 1972-52994</u>	19721116
	<u>US 4157648</u>	A	19790612	<u>US 1975-586457</u>	19750612
PRAI	<u>US 1971-199808</u>	A	19711117		
	<u>US 1973-358188</u>	A1	19730507		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
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	<u>FR 2160411</u>	IC	C06CIC B60R
	<u>US 4157648</u>	NCL	060/205.000; 149/035.000; 423/351.000
AB	Mixts. of azides , halides , and a primer are capable of inflating, upon reaction, a 10-gal car-collision bag to 20 psi in 30 msec. The general reaction is $\text{NaN}_3 + \text{MX}_n \rightarrow \text{nAX} + 3\text{n}/2\text{N}_2 + \text{M}$, in which A is an alkali metal, X is a halogen atom, n is an integer, and M is a metal whose azide is nontoxic because of the possibility of the secondary reaction $\text{NaN}_3 + \text{MX}_n \rightarrow \text{nAX} + \text{M}(\text{N}_3)_n$. Preferred reactants are SnCl_2 , AlCl_3 , FeCl_2 , and TiCl in amts. 10% above stoichiometric and NaN_3 , LiN_3 , or KN_3 .		
ST	collision bag inflation azide ; halide azide reaction; safety collision bag inflation		
IT	Safety devices (air bags, azide-chloride propellants for automotive)		
IT	Propellants (azide-chloride , for automotive safety bags)		
IT	Chlorides , uses and miscellaneous RL: USES (Uses) (propellants , contg. azides for automotive safety bags)		
IT	<u>7446-70-0</u> , uses and miscellaneous <u>7699-45-8</u> <u>7705-08-0</u> , uses and miscellaneous <u>7772-99-8</u> <u>7786-30-3</u> , uses and miscellaneous <u>10241-04-0</u> <u>10476-85-4</u> RL: USES (Uses) (propellants , contg. azides for automotive safety bags)		

IT 19597-69-4 20762-60-1 22750-57-8 22756-36-1 26628-22-8
 RL: USES (Uses)
 (propellants, contg. chlorides for automotive safety bags)

L4 ANSWER 63 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text	Citing References
AN 1973:506512	CAPLUS
DN 79:106512	
ED Entered STN: 12 May 1984	
TI Low-temperature, nitrogen gas-generating composition	
IN Hendrickson, Roger R.; Munson, William O.; Reed, Russell; Shaw, Graham C.	
PA Thiokol Chemical Corp.	
SO U.S., 5 pp.	
CODEN: USXXAM	
DT Patent	
LA English	
IC F16P; B60R	
INCL 280150000AB	
CC 49-1 (Industrial Inorganic Chemicals)	
FAN.CNT 1	

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 3741585	A	19730626	US 1971-158108	19710629
JP 57013485	B4	19820317	JP 1973-83502	19730723
PRAI US 1971-158108		19710629		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 3741585	IC	F16PIC B60R
	INCL	280150000AB
US 3741585	NCL	280/741.000; 053/434.000; 149/035.000; 252/183.140; 252/372.000; 423/351.000; 423/410.000

AB A compn. which upon ignition forms N at 1200-2000°F and is esp. useful for inflating passenger vehicle crash bags, consists of a mixt. of an alkali metal or alk. earth azide and a metal oxide, sulfide, or iodide. The preferred compn. is Na azide 30-70, V2O5 40-60, and MoS2 1-5%. An intimate mixt. of the materials is made and pelletized. In use, the pellets are placed in a gas generator, and ignited by a B and KNO3 hot-particle type ignition system. In an example 15.4 mmoles of gas/g material were formed and developed 16.4 psia in a 7.6-1 chamber in 0.02 sec.

ST nitrogen generation air bag inflation; azide decompn air bag inflation; automobile air bag inflation compn; vanadium oxide air bag inflation

IT Safety devices
 (air bags, propellants for automotive)

IT Propellants
 (gas-generating, for automotive air bags)

IT 507-25-5 1309-60-0 1313-27-5, uses and miscellaneous 1314-35-8
1314-62-1, uses and miscellaneous 1317-33-5 1317-37-9 2385-85-5
7704-34-9, uses and miscellaneous 26628-22-8
 RL: USES (Uses)
 (propellant, for automotive air bags)

L4 ANSWER 68 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text	Citing References
AN 1939:62496	CAPLUS
DN 33:62496	

OREF 33:8992e-g
 ED Entered STN: 16 Dec 2001
 TI Combustion of explosives
 AU Belyaev, A. F.
 SO J. Phys. Chem. (U. S. S. R.) (1938), 12, 93-99
 DT Journal
 LA Unavailable
 CC 24 (Explosives and Explosions)
 AB The combustion of secondary high explosives differs from that of **propellants** in that most secondary high explosives are appreciably volatile in the neighborhood of their ignition temps., and hence evapn. may absorb much of the mol. energy liberated at the burning face. B. therefore believes that their combustion takes place in the gas phase. The penetration of combustion from the gas phase into the condensed phase may lead to the immediate development of detonation. An exception to the theory is noted in the case of guncotton which is capable of combustion but is not noticeably volatile. Primary explosives (**azides**, etc.), in which detonation arises very readily, possess insignificant volatility, although N **chloride** is an exception, having high volatility but a small energy of activation.
 IT Explosives
 (combustion of secondary)
 IT Detonation
 (of explosives)
 IT Combustion
 (of explosives (secondary))

L4 ANSWER 69 OF 69 CAPLUS COPYRIGHT 2005 ACS on STN

Full Text	Citing References
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AN 1939:62495	CAPLUS
DN 33:62495	
OREF 33:8992e-g	
ED Entered STN: 16 Dec 2001	
TI Combustion of explosives	
AU Belyaev, A. F.	
SO Acta Physicochimica URSS (1938), 8, 763-72	
CODEN: ACPYAR; ISSN: 0365-1460	
DT Journal	
LA English	
CC 24 (Explosives and Explosions)	
AB The combustion of secondary high explosives differs from that of propellants in that most secondary high explosives are appreciably volatile in the neighborhood of their ignition temps., and hence evapn. may absorb much of the mol. energy liberated at the burning face. B. therefore believes that their combustion takes place in the gas phase. The penetration of combustion from the gas phase into the condensed phase may lead to the immediate development of detonation. An exception to the theory is noted in the case of guncotton which is capable of combustion but is not noticeably volatile. Primary explosives (azides , etc.), in which detonation arises very readily, possess insignificant volatility, although N chloride is an exception, having high volatility but a small energy of activation.	
IT Explosives	
(combustion of secondary)	
IT Detonation	
(of explosives)	
IT Combustion	
(of explosives (secondary))	

=> file stnguide

COST IN U.S. DOLLARS

SINCE FILE	TOTAL
ENTRY	SESSION
78.51	129.39

FULL ESTIMATED COST

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)

SINCE FILE	TOTAL
ENTRY	SESSION
-12.41	-19.71

CA SUBSCRIBER PRICE

FILE 'STNGUIDE' ENTERED AT 08:47:58 ON 31 OCT 2005

USE IS SUBJECT TO THE TERMS OF YOUR CUSTOMER AGREEMENT

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FILE CONTAINS CURRENT INFORMATION.

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